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ABSTRACT

Presented is an overview of the depth and range of the ethics activities undertaken by societies affiliated with the American Association for the Advancement of Science (AAAS). Included in this report are: (1) reviews of previous surveys of organizations which had adopted codes of ethics; (2) descriptions of the methodology and findings of the ethics survey and workshop sponsored by the AAAS; (3) highlights of the ethics activities of selected AAAS affiliates; and (4) conclusions and recommendations. This material is intended to serve as a resource for future inquiries and as a foundation for evaluating the functions of professional societies. Included in the appendix are examples of policies regarding professional ethics. (Author/WB)

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AAAS Professional Ethics Project

Professional Ethics Activities in the Scientific and Engineering Societies

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Preface

This final report of the AAAS Professional Ethics Project, prepared by the office of the AAAS Committee on Scientific Freedom and Responsibility, builds upon a long-standing concern within the Association about the importance of ethical issues in the development and use of science and technology.

AAAS itself, the largest federation of scientific and engineering organizations, has not endorsed a formal statement of ethical principles or a universal code of ethics for scientists and engineers. Through various activities, however, we have addressed many questions related to professional ethics concerns. Through the Association's journal SCIENCE, through committee reports and workshop and annual meeting discussions, through our publications and special surveys of our affiliated societies and individual members, AAAS has explored various ethical issues related to the rights and duties of scientists and engineers in modern times. A brief discussion of these activities is useful here in order to provide a perspective in which to consider the report of our most recent and ambitious effort, the AAAS Professional Ethics Project.

In the period 1950-1970, several AAAS ad hoc committees considered the feasibility of a code of ethics to define the rights and obligations of scientists and engineers. These committees ultimately recommended that AAAS should rely upon our individual affiliated societies to develop such ethical principles and the rules derived from them. The Association itself addresses ethical problems related to science and technology which cut acrosss disciplinary lines. At present, in addition to our 130,000 individual members, over 241 scientific and engineering societies and 46 local and state academies of science are affiliated members of AAAS (see Appendix A for a complete listing of these societies). Each affiliated society or academy of science acts independently in its own special disciplinary field or geographical area. This report provides the first overall view of the depth and range of the ethics activities developed by our affiliated members.

In 1970, an ad hoc committee chaired by Allen V. Astin, former director of the National Bureau of Standards, was appointed by AAAS to study the issue of scientific freedom and responsibility. The final committee report, prepared in 1975 by John T. Edsall, professor of biochemistry at Harvard University, strongly recommended that AAAS and its affiliated groups should play a much more active role in "fighting on behalf of their members who are attempting to defend the public interest" (selected excerpts from Dr. Edsall's report are included in Appendix A).

This recommendation led to the establishment in 1976 of a new standing AAAS Committee on Scientific Freedom and Responsibility and the creation of a committee office at the Association. Currently chaired by Dr. Edsall, the committee is chartered to study timely issues of ethical concern involving scientists and engineers and to develop the role of AAAS in working with our affiliates in addressing these concerns.[2] The Association also added a fifth aim--"to foster scientific freedom and responsibility"--to the AAAS objectives following the creation of the new committee.

In addition to these activities, the Association has conducted surveys of AAAS affiliates, our individual members, and university programs in the area of professional ethics. In 1966, for example, Anatol Rapoport (then at the University of Michigan) surveyed a random sample of 5,000 AAAS members to determine whether there was strong support in the scientific community for an ethical code analogous to legal and medical codes. More recently, in 1977, the AAAS Office of Science Education (OSE) surveyed about 18,000 university and college department heads in the sciences, humanities, engineering, law, medicine, philosophy and theology, to identify courses related to ethics and values in science and technology. The OSE survey responses were published as a resource directory for educators interested in this emerging field.[3]

Various symposia at the AAAS Annual Meetings have also addressed concerns related to professional ethics. The papers from two such sessions were recently published as part of the AAAS Selected Symposia Series. [4]

With respect to the work of our affiliated members, AAAS recognizes the difficulties and sensitivities that accompany attempts to codify professional ethics. Within the traditional processes of science, ethical rules have come to be relatively well-understood and enforced through peer processes. A new dimension of ethical conerns has surfaced, however, resulting from the impacts of scientific advances upon social institutions and community or individual values. To the extent that organizations of scientists are slow to recognize the emerging dilemmas, governments will tend to legislate rules to accompany tax-supported research and experimentation. This intervention is already obvious in such fields as genetics and social science research. One of the important roles of scientific societies in the coming years will surely be that of negotiating the terms in which science is to proceed in an environment of public accountability and oversight. It will not be easy. Yet, self-regulation and the enforcement of ethical rules which serve the public's best interests as well as the interests of the professions, may diminish, if not entirely ward off adversarial confrontations between the scientific community and political bodies.

It is not within the province of AAAS to set a seal of approval or disapproval upon the approaches of its member societies toward the problems of professional ethics. But AAAS can observe and report progress as it occurs and provide information and opportunities for study and debate that can clarify our future directions.

William D. Carey
Executive Officer
American Association for
the Advancement of Science

October 1980

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We also wish to thank those individuals in the professional societies affiliated with AAAS who gave generously of their time and information in completing the multi-page project questionnaire, in participating in the workshop, and in reviewing portions of the report manuscript. We are particularly grateful for the advice and suggestions offered by William D. Carey, Executive Officer of the AAAS, and the members of the Professional Society Ethics Group, an informal advisory body formed during the project.

In addition to the AAAS Committee members, several persons took time out from their busy schedules to review and comment on the survey questionnaire. We thank Alan Gross (University of Maryland), Joseph Haberer (Purdue University), Paul Reynolds (University of Minnesota), Henry W. Riecken (University of Pennsylvania), Brian Schwartz (Brooklyn College, CUNY), Vivien Shelanski (Science, Technology and Human Values), and Stephen Unger (Columbia University) for their assistance.

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Finally, we express our appreciation to the members of the project staff and others who have contributed to this study throughout the past two years. Sallie B. Chafer ably coordinated the workshop and prepared Chapter Four and the Bibliography. Gail Eaglen assisted with the data tabulations for Chapter Three. Arthur Herschman developed the society classification scheme used in Chapter Three and Appendix D. Will Adams, Margaret McDonald, Sandra Peters, Pat Roseberry, and Amy Silverman at the AAAS offices; Chacona Bolling, Chris Dobrovich, Sue Hicks, and Carol Watson at Wayne State University; and Marion Denne at the Illinois Institute of Technology provided typing and administrative services for the project.

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1

Introduction

Increasingly, the professions and the public have become aware of the ethical concerns associated with the development and use of science and technology. This awareness has prompted a widespread re-examination of the present status of professional self-regulation and has stimulated interest in the ethics activities of the professional scientific and technical societies. Beyond compilations of existing codes of ethics, however, these activities have not been documented comprehensively or subjected to systematic evaluation.[1]

In order to provide a detailed study of the professional ethics activities of its affiliated societies, which include more than 240 scientific and technical organizations, the American Association for the Advancement of Science (AAAS) in Washington, D.C. initiated a Professional Ethics Project in April 1979. The project was based in the office of the AAAS Committee on Scientific Freedom and Responsibility and was supported by the National Science Foundation and the National Endowment for the Humanities.[2] This final report presents the major findings of the AAAS study.

The project addressed several objectives. Its goals were:

(1) To identify the range of professional ethics activities conducted by the societies affiliated with AAAS;

(2) To describe ethical principles, rules of conduct, and ethics programs adopted by the affiliated societies;

(3) To suggest important areas of ethical concern which were not addressed by the societies; and

(4) To recommend roles for the societies in the area of professional ethics.

The major components of the project were a survey to document the existing ethical principles and procedures of the AAAS-affiliated societies, and a two-day workshop to discuss the survey findings. The survey and workshop provided valuable opportunities to identify highly diversified approaches to professional ethics concerns within the various scientific and technical societies. As a result, the project report presents a unique collection of information about professional ethics activities and forms a foundation for further evaluation of ethical issues currently of concern to the professional societies. The report also provides a data base to study the societies' responses to those issues.

It is our hope that this report will stimulate additional discussion and research on professional activities addressing ethical concerns in science and technology. We anticipate further that the report will foster greater understanding of the importance of clarifying fundamental values associated with the development and use of science and technology. Finally, we hope that

through such examinations, the professional societies will benefit from each other's experience in seeking ways to respond effectively to the ethical concerns of their members and of those persons affected by their members' professional activities.

Professional Ethics and Self-Regulation

In the late 1960's and the 1970's, society as a whole and scientists and engineers in particular intensified their concerns about the risks as well as the benefits associated with science and technology. A host of political and legal controversies surfaced as the ethical choices and dilemmas associated with the public and private use of technical knowledge became increasingly apparent in areas such as food, energy, transportation, communication, medicine, and other social services. These controversies posed difficult questions about balancing social welfare concerns with individual rights in a technological society and about the personal accountability of professionals in resolving ethical conflicts over the development and use of science and technology.

Public and professional concerns about science and technology initially focused on the highly visible products of technology such as airport sitings, the use of pesticides or drugs, or the development of new energy facilities. These concerns rapidly expanded, however, to include a broader re-examination of the more indirect ways in which professional knowledge and research methodology affected the public.[3] As a result, broader attention was focused on the safety of research procedures, the cost and availability of professional services, and the qualifications of technical personnel. These concerns have stimulated a review of the basic assumptions governing the accountability measures developed within the professions. Such assumptions are often embodied in the ethical principles or rules of conduct adopted by the professional societies, and as a result increasing attention has been directed toward the development and application of the societies' codes of ethics.

The debate over the relative merits of professional as opposed to government regulation of the activities of scientists and engineers is likely to reach a higher level of public concern during the next few years.[4] The issue of the appropriate "mix" of public and professional self-regulation has emerged from this discussion as a critical indicator reflecting the degree of public skepticism and diminishing trust in the professions. In areas where the professions are perceived as not serving public needs, external forms of accountability have been created to monitor the relationship between the scientific and technical professions and the public.

If the scientific societies are to continue to exercise their traditional professional autonomy, they will need to demonstrate that their ethical principles and rules of conduct serve society's interests as well as the interests of their own profession and that those guidelines are observed by their members. Professional ethics activities, therefore, are an important measure of a profession's willingness to self-regulate the behavior of its members on behalf of the public as well as the profession.

The formulation of ethical principles or the adoption of rules of conduct by a professional society can be viewed as a significant indicator of the profession's willingness to accept some responsibility for defining "proper professional conduct," sensitizing members to important ethical issues embodied in these standards, and governing member behavior. But the presence of a set of ethical principles or rules of conduct is only part, albeit an important one, of the machinery needed to effect self-regulation. The impact of a profession's ethical principles or rules on its members' behavior may be negligible, however, without appropriate support activities to encourage proper professional conduct, or the means to detect and investigate possible violations, and to impose sanctions on violators. Provisions for

actively implementing and enforcing a profession's rules of conduct will not guarantee effective self-regulation; but their presence does make it possible.

Changing Roles for Professional Societies

Professionalization has been characterized by some observers as a process by which an organized occupation, usually on the basis of a claim to special competence and a concern for the quality of its work and its benefits to society, obtains the exclusive right to perform a particular kind of work, to control training criteria and access to the profession, and to determine and evaluate the way the work is performed.[5]

The professions associated with scientific and technical work are represented by a wide range of professional societies rather than a single association, such as the American Bar Association. These societies, which are an important institutional group within the scientific and technical professions, fall into several categories, including: scholarly organizations which are narrowly constructed to facilitate information exchange and the development of knowledge; associations which are designed to publicize and promote the services of their profession and to attain benefits for members; and societies which not only facilitate communication among members but also promote standards of conduct enhancing the quality of professional work performed by their members. These categories are not well defined, however, and no systematic effort has been made in this study to develop a classification scheme to apply to individual societies. Indeed, a single society may assume several roles in responding to the needs of its professional members and to changing social circumstances. The societies affiliated with AAAS include a broad mixture of organizations, and thus it is difficult to generalize about common roles for this diverse group.[6] However, a few comments are offered here which describe social forces affecting all or most of the affiliated societies, regardless of their professional category.

In recent years, professional groups have addressed complex and challenging ethical and legal issues, prompted by developments such as:

(1) the changing demands of society. Numerous broad social trends have intensified and focused on the ethics of professional conduct. These trends include: public expectations for accountability in all professions; consumer demands to be informed, consulted, and protected in matters of professional conduct; public concern over the impact of professional actions on the environment and occupational health and safety; and critical reactions to scientific and social progress.

(2) the changing roles of scientists and engineers. The broad socio-economic profile of scientists and engineers--the members of the professional societies--reveals diversified professional and public roles, such as policy-maker, consultant to or employee of private enterprise or government, administrator, public advocate, as well as the traditional roles of teacher, researcher, and independent practitioner. As a result of these changing roles, the professional is assuming additional responsibilities for the public as well as for the professional uses of science and technology.

(3) the changing role of government. Government actions to regulate or influence professional activities and conduct are often a response to societal trends, such as those cited above. For example, government regulations and procedures affecting professional services have been developed by the Federal Trade Commission and the Department of Health and Human Services, among others. Partially as a response to the demand for consumer protection against business and professional self-interests, the FTC has addressed unfair competition

and deceptive practices in all business areas, including the services of medical professionals and engineers. Professional society codes of conduct can bring the societies into conflict with the FTC mandate, for example, when provisions in the codes appear to prohibit or severely restrict advertising by members. In response to documented research abuses, HHS (through its predecessor, the Department of Health, Education and Welfare) has created organizations to monitor and improve research procedures involving human subjects--including Institutional Review Boards established at the university level to review proposed research projects supported by government funds.

These developments demonstrate a clear and increasing concern over the standards used to evaluate professional conduct in society as a whole, in government, and in the memberships of major professional societies. Many professional societies are responding to these concerns by re-evaluating the appropriate role of their organizations in establishing ethical principles or standards of ethical conduct for their members, by creating or revising their codes of professional ethics, and by actively defending members whose professional rights and responsibilities are unfairly restricted. In the process, societies are examining many complex and central issues, including:

(1) problems in constructing or revising and enforcing codes of ethics, including issues such as: identifying the basic ethical principles of importance to a society's profession, resolving conflicts between professional standards derived from these principles and legal obligations; establishing uniform criteria and goals for the society's adoption of code provisions; dealing with conflicting roles of the society's members; encouraging employer cooperation in promoting voluntary standards; and absorbing the cost of implementing and enforcing expanded codes.

(2) protection of professional working conditions, including issues such as: preserving academic freedom in universities, an area traditionally addressed through the actions of the American Association of University Professors; and resolving dilemmas faced by non-academic professional employees, for example, conflicts between loyalty to a supervisor's command and adherence to professional ethical standards.

(3) dilemmas created by the professional society's role as an agent for broad societal interests, including issues such as: affording public access to expert knowledge in science and technology; calling attention to potential benefits and risks of emerging technologies; and ensuring the independence of professional judgment and scientific integrity in public and private decisions in the development and use of science and technology.

Depending on the legal requirements for their profession, some professional societies also must address licensing and certification procedures for their members. Professionals with unique and specialized expertise frequently are licensed or certified in the public interest as competent practitioners--indeed, licensing is sometimes described as one characteristic of a true profession. Codes of ethics can contribute to the image of a profession and enhance the development of licensing or certification procedures, which include setting standards, controlling admission to the profession, and establishing examination requirements. The goal of licensing procedures is to assure competent practicing professionals, and professional societies--because of their expertise--are often charged with overseeing such procedures to protect the public welfare through active monitoring mechanisms. In some cases, individual societies must scrutinize their licensing procedures carefully to assure that the procedures do not unreasonably restrict entry to the profession

or public access to professional services. If licensing or certification is conducted by government organizations, the society needs to consider the relative responsibilities of the society's ethics committee and the government organization in resolving society or government disciplinary actions against society members and in assuring adequate exchange of relevant information.

Professional Ethics Concerns Outside the Professions

Professional ethics issues have surfaced in many places outside the professional societies themselves. Building on general concerns about the historical and social roles of the professions, several new centers and study projects have focused on professional ethics issues in the last decade. A complete analysis of the scope of this broader sphere of activity was clearly beyond the limits of our study. However, several organizations which have produced reports of direct relevance to the AAAS Professional Ethics Project are mentioned here in order to provide a glimpse of what recently has been termed the "ethics growth industry."[7]

(1) Hastings Center Study on the Teaching of Professional Ethics (Hastings-on-Hudson, New York)
Co-directed by Daniel Callahan of the Hastings Center and Sissela Bok of Harvard University, this two-year study identified and examined in detail more than 12,000 courses on professional ethics in various fields, including science, medicine, law, journalism, and business ethics. The Center consulted with more than 500 teachers of ethics and conducted several workshops on selected topics. The Hastings Center reports were published in April 1980 in a series of monographs, and since that time the Center has initiated a new program in professional and applied ethics.[8]

(2) National Project on Philosophy and Engineering Ethics, Rensselaer Polytechnic Institute (Troy, New York)
Robert J. Baum, Director of the Center for the Study of Human Dimensions in Science and Technology at RPI, has initiated and directed a three-year project which seeks to broaden the discussion of contemporary engineering ethics. Fifteen to eighteen two-person teams of philosophers and engineers were formed in the project to review value dimensions of engineering skills and activities. Team projects have included preparing case studies of selected ethics problems in engineering, developing curricula for professional ethics courses, and preparing recommendations for the engineering societies. The project's final report will include the individual team reports and will identify obstacles to effective philosopher-engineer cooperation.

(3) Center for the Study of Ethics in the Professions, Illinois Institute of Technology (Chicago, Illinois)
The Center was established in 1976 for the purpose of promoting scholarship and teaching related to the professions, with special emphasis on professional ethics. Under the direction of Mark S. Frankel (Co-director of the AAAS Professional Ethics Project), the Center maintains a resource collection of almost 5,000 printed items on the professions, offers bibliographic services, and publishes occasional monographs and reports on professional ethics issues as well as A Selected Annotated Bibliography of Professional Ethics and Social Responsibility in Engineering.

(4) National Center for the Study of Professions (Washington, D. C.)
The National Center is a small, private, non-profit research corporation directed by Paul S. Pottinger. The Center's research and program activities focus on the public service professions, addressing

issues related to education and training for new professional roles, certification and licensing, and manpower planning. The Center also publishes a monthly newsletter, "Pro-Forum."

Other projects of interest to the AAAS Professional Ethics Project included:

* "The Idea of a Profession," a three-year research study sponsored by the National Humanities Center in North Carolina;

* "Regulation of the Professions," an 18-month study conducted by The Futures Group in Glastonbury, Connecticut;

* "Committee on Professions & Public Accountability," directed by Profession Louis H. Orzack at Rutgers University;

* "Society and the Professions: Studies in Applied Ethics," an undergraduate education program initiated in 1974 at Washington and Lee University.

In addition to these centers and research projects, several associations have been formed recently to address professional ethics issues or to review the fundamental issues associated with professional self-regulation. These include the Society for the Study of Professional Ethics, which was established in 1978 to provide an interdisciplinary forum for consideration of ethical questions associated with professional practice, and the Association for Professional Practice, which has sponsored three national conferences on enforcement in occupational and professional regulation.

What is "Professional Ethics"?

One major difficulty recognized early in the development of the AAAS study was the lack of a common definition for "professional ethics activities" within the affiliated societies. The ethical principles, rules of conduct, and other practices developed by the professional societies represent institutional responses by the scientific and engineering professions to many different but related phenomena: the increasing complexity of scientific work, the increasing awareness of individual rights, and the social impact of science and technology. Yet, although these professional ethics activities may affect the behavior of scientists and engineers, such activities are highly diversified and are often not easily identifiable. The first goal of the project, therefore, was to develop a working definition that would cover the broad scope of activities relevant to the research study. The following definition was adopted:

> 'Professional ethics' refers to those principles that are intended to define the rights and responsibilities of scientists and engineers in their relationship with each other and with other parties including employers, research subjects, clients, students, etc.

A wide range of activities might fall within the scope of this definition. For example, ethical principles might refer to a statement of the underlying reasons which was the foundation for a society's decision to adopt professional standards or rules of conduct. The project team assumed that the ethical statements provided by the societies would provide a means of distinguishing between these broader principles and more narrowly defined rules of conduct for their members. As will be discussed in Chapter Three however, the "principles" provided in response to the survey primarily referred to the rules of conduct themselves and not to any underlying reasons for such rules. The term "rules" therefore is substituted for "principles" in analyzing the survey data as a result.

The professional ethics programs adopted by a society may be tied directly to its code of ethics, and include activities involved in the development, implementation, or enforcement of the code. In other organizations, professional ethics activities may include committees which review fundamental questions about conflicting values associated with the use of scientific and technical information, employer/employee relations, social concerns, or public policy issues. A few groups have developed financial aid or legal assistance programs for members who experience difficulties in adhering to the professional standards of their societies and these programs also might form part of the society's ethics activities. In addition, educational activities in the form of journal articles, annual meeting symposia, or special publications may address ethical issues of concern to the professional societies. Thus, the professional ethics activities studied in the AAAS project clearly go far beyond those associated only with the societies' codes of ethics, although as will be seen, these code-related efforts are often the most visible component of the societies' programs and are the cornerstone of their approach to those issues.

Expanding on the above definition, the project developed a framework for classifying the broad range of ethics activities that were identified by the study. This framework facilitated a comparison of activities among groups that at first glance appear to have very little in common, such as the psychologists and the engineers. The framework also provides a means of identifying activities common to many groups as well as points that are unique or are addressed by only a few groups. The framework is developed and discussed in Chapter Three of this report.

Outline of the Report

A society's code of ethics may explicitly or implicitly state the values on which the profession places importance, and the code often forms the basis for a standard of professional conduct. Several previous surveys--some unpublished--identified the scientific and engineering societies which had adopted such codes. No comprehensive listing of these surveys existed, however, prior to the review included in Chapter Two of this report.

Chapters Three and Four present the methodology and findings of the survey and workshop sponsored by the AAAS project. Chapter Three describes the survey instrument designed to collect information about the ethical principles, rules of conduct, and procedures adopted by the AAAS-affiliated societies, and summarizes the survey findings. The survey questionnaire was mailed to the executive officers of 241 societies in June 1979. More than 70 percent of the societies responded to the survey, providing the basic data for further analysis in the project.[9]

In addition to providing information about on-going activities, the project developed a framework for discussing and critiquing experiences with professional ethics concerns. The project workshop described in Chapter Four served as a forum for this purpose. The workshop participants reviewed the survey data, identified problem areas which raise ethical issues for the scientific and technical professional today, and suggested criteria by which the societies' professional ethics activities could be evaluated. Eighty participants, representing the professional societies and other concerned groups, attended the two-day workshop in November 1979.

On the basis of the workshop discussions and the survey findings, the project team selected several societies' ethics activities for further analysis, summarized in Chapter Five. Additionally, Chapter Six includes the general findings of the Professional Ethics Project, which suggest that in the 1970's, more and more scientific and engineering societies addressed ethical aspects of their members' professional activities. For example, a number of societies revised their codes or formulated a code for the first time. Other

societies developed guidelines for professional conduct to monitor and respond to errors in professional judgment and abuses of professional rights. A few societies also developed programs to provide support for members who upheld the code, and to impose sanctions against members found to be in violation of the code. These rules and practices are the means by which the societies strive to regulate the work environment and the behavior of scientists and engineers.

However, the project team concluded that, in general, the professional scientific and engineering societies have not developed in-depth programs addressing the ethical implications of their members' work. Furthermore, where societies have attempted to directly intervene by supporting or sanctioning a member in response to ethical concerns, such attempts often are ineffective or are based on ad hoc procedures which do not represent a formalized concern about the significance of such actions within the profession or society as a whole. On the basis of these findings, recommendations for future roles for the societies and their members are also included.

It is our hope that these findings and recommendations will stimulate further attention to the importance of professional ethics concerns. Indeed, throughout the history of the project, various representatives from the societies, universities, the courts, government agencies, and the general public contacted the project team to inquire about preliminary findings and to obtain information about particular professional society ethics programs, principles or rules of conduct. We expect that this interest will continue and that further systematic study will examine the interface between science and society represented in the professional ethics activities of the scientific and engineering societies. In a time of general confusion, uncertainty and conflict over the ethical questions associated with the development and use of science and technology, it is important to note the significant activities that have emerged in response to such questions, so that others might learn from them. The material collected as part of the AAAS Professional Ethics Project clearly will serve as a major resource for future inquiries and as a foundation for evaluating the appropriate functions of the professional societies in a time of changing expectations.

References

1. The most complete (if somewhat dated) collection of professional codes of ethics appears in Jane Clapp's Professional Ethics and Insignia (Metuchen, N.J.: The Scarecrow Press, Inc., 1974).

2. Funding was provided jointly by the program on Ethics and Values in Science and Technology, Office of Science and Society, National Science Foundation, and the program on Science, Technology, and Human Values, National Endowment for the Humanities. (NSF Grant No. OSS-7906978.)

3. See for example Dorothy Nelkin (ed.), Controversy: Politics of Technical Decisions (Beverly Hills, CA: Sage Pub., 1979), Jerome R. Ravetz, Scientific Knowledge and Its Social Problems (New York: Oxford University Press, 1971), I. Rosing and Derek De Solla Price (eds.), Science, Technology and Society (Beverly Hills, CA: Sage Pub., 1977), Frank von Hipple and Joel Primack, Advice and Dissent: Scientists in the Political Arena (New York: Basic Books, 1974), and Ian G. Barbour, Technology, Environment and Human Values (New York: Praeger, 1980).

4. The following discussion previously appeared in an editorial by Mark S. Frankel titled "Professional Ethics and Self-Regulation", Journal of the Society for Social Studies of Science, Vol. 4, No. 2, Spring 1979, pp. 13-14.

5. Quoted from H.M. Vollmer and D. L. Mills (eds.) Professionalization (Englewood Cliffs, N.J.: Prentice-Hall, 1966). This reference appears in Eliot Freidson's chapter titled "Professions and the Occupational Principle" in a book edited by Freidson, The Professions and Their Prospects (Beverly Hills, CA: Sage Pub., 1973), pp. 22.

6. Societies which wish to affiliate with AAAS must meet criteria specified by the AAAS Council in 1976. These criteria include a judgment by Council that the aims of the applicant society are consistent with the objectives of the Association, and that it does not discriminate in its membership on the basis of race, creed, color, sex, or national origin. At the time of the Professional Ethics Project survey (June 1979), 241 professional societies and 46 state and local academies of science were affiliated members of AAAS. (See Appendix A for a complete listing.)

7. "Ethics Growth Industry for Engineering, Science" in Engineering Times, January 1980.

8. The Teaching of Ethics in Higher Education: A Report by The Hastings Center, (Hastings-on-Hudson, N.Y.: The Hastings Center, 1980). Nine separate monographs were published in addition to the project report.

9. The raw data obtained from the survey questionnaire are available for review at the office of the AAAS Committee on Scientific Freedom and Responsibility in Washington, D.C. Copies of the survey questionnaire are also available at the offices of the Center for the Study of Ethics in the Professions, Illinois Institute of Technology, Chicago, Illinois.

2

Earlier Surveys

In preparing and conducting the project survey of scientific and engineering societies affiliated with AAAS, other surveys of professional ethics activities were identified. The surveys differ among themselves and from the present survey with respect to their intent, scope and/or findings; but each paints its own particular portrait of reality and, taken collectively, they constitute a pre-existing data base to which the findings of the project survey can be compared. This chapter, then, presents a summary review of these earlier surveys.

1. Petersen Survey[1]

In 1969, sociologist William Petersen (Ohio State University) conducted a survey of "every professional society I could identify in the physical, natural, social and applied sciences...,"[2] asking whether they had adopted ethical principles governing research and whether ethical issues in research had been a subject of discussion by individual members or subgroups of professionals. Petersen observed that "most of those so addressed were kind enough to respond,"[3] but no numerical figures were reported.[4]

The survey responses were integrated with other data and commentary relating to limitations placed on the acquisition of new knowledge, thus making it difficult to isolate and summarize those findings resulting from the survey. Petersen was particularly critical of some of the codes adopted by medical and psychological associations, however, and concluded that with respect to "both animals and humans, the general rule has been to depend on self-regulation by the professions. There are few statutory controls, and those are not well enforced.... It can hardly be said, in short, that research is unduly hampered by unreasonable controls...."[5]

2. Trumbull Survey of AAAS Affiliated Societies[6]

In 1970, the AAAS appointed an ad hoc committee to study the general conditions required for scientific freedom and responsibility. As part of that committee's task, AAAS Deputy Executive Officer Richard Trumbull wrote to the executive officers of the 246 societies affiliated with the AAAS in July 1971 requesting information on their societies' practices and principles relating to professional ethics. Eighty-eight societies responded to Trumbull's inquiry. Thirty-two societies reported having codes of ethics, two indicated that they subscribed to the codes of other societies, and four responded that they had codes under consideration. Fifty societies replied that they did not have codes of ethics. Information on other professional ethics activities submitted by the societies was not tabulated as part of the original survey report.

3. Orlans Study of Five Social Science Associations[7]

In the mid-1960s, the House of Representatives' Research and Technical Programs Subcommittee requested that its staff undertake a broad inquiry into

the social sciences in preparation for possible congressional hearings into the adequacy and usefulness of government social research programs. The staff study was directed by Harold Orlans and, although the hearings were never convened, the large volume of information collected by the staff was eventually published.[8] Subsequently, however, Orlans drew upon his staff experience and other sources to prepare a more focused inquiry of the social sciences, including an examination of the professional ethics activities of five social science associations. It is the latter findings that are reviewed in this chapter.[9]

Orlans limited his investigation to the status of ethical codes in five social science associations and characterized their efforts to develop codes as "generally unimpressive and politicized..."[10] At the time of the study, only one had "taken effective steps to see that members observe ethical standards," while another had "shown no interest in formulating any code to which its members would subscribe." The remaining three associations had held discussions and prepared statements on specific ethical issues, but according to Orlans, "these statements have generally put more stress on the liberties of investigators than on the rights of subjects; and little or nothing has been done to enforce them."

4. Reynolds Survey of National Social Science Associations[11]

In 1973-74, with support from UNESCO, Paul D. Reynolds (University of Minnesota) requested 300 national professional associations representing social scientists to forward a copy of any proposed or adopted code of ethics related to the use of human subjects in research. Responses were received from ninety national associations, twenty-four of which forwarded copies of their ethical codes.

Reynolds developed a composite list of the seventy-eight ethical statements found in the codes, organizing them according to the following major categories: (1) General Issues, (2) Decision to Conduct the Research, (3) Conduct of the Research, (4) Effects and Relationships to the Participants (informed consent, subject rights and welfare, benefits), (5) Effects on Aggregates or Communities, and (6) Interpretations of and Reporting of the Results of the Research. Several of the study's findings deserve mention here: (a) no two statements were obviously inconsistent; (b) there were very few cases where any statement was cited with considerable frequency--most (66%) of the statements were found in only one or two of the codes; (c) very few codes provided for penalties in cases of non-compliance; (d) twenty-eight percent were explicitly presented as advisory; (e) none of the codes specified any benefits to the investigator for compliance (except for continuation of membership in the association).

In a subsequent and more comprehensive analysis of ethical issues in social science research, Reynolds presented his survey data once again and elaborated on some of his earlier findings. He expressed dismay with the codes of ethics, observing that they provide "some help to those conducting routine or nonthreatening research, but no guidance on how to resolve difficult predicaments."[12] And on the matter of enforcement, he emphasized that there is "no systematic monitoring of social science research activity by any association; there is no advantage for any individual (participant or not) to bring possible infractions before an association...; finally, there are no meaningful punishments for non-compliance and no substantial advantages for the members who do comply with the procedures."[13]

5. Levy Survey of Human Service Groups[14]

Charles S. Levy, (Yeshiva University), Chairman of the Task Force on Ethics of the National Association of Social Work (1977-79), examined the codes of ethics of eighty-nine human service occupational groups. He

classified the ethical statements into four broad categories: (1) the practitioner, (2) the client and others affected by or affecting the client, (3) professional colleagues, and (4) society. Only a brief summation of the constituent elements of each category is possible here.

Under category (1) the practitioner, Levy found reference to the following attributes expected of those in the human service professions: competence, integrity, dignity, independence, impartiality, propriety and possession of one's faculties. Under category (2) the client, Levy listed the following: devotion and loyalty, objectivity, honesty and candor, confidentiality, propriety, punctuality and expeditiousness, respect for the client's autonomy and personal attention. Under category (3) professional colleagues, Levy cited: etiquette, fairness and professional orientation. And under category (4) society, Levy identified the following: care in the use of personal status, care in one's personal associations, regard for others, justice (including the practitioner's readiness to "effect appropriate disciplinary action against colleagues for unethical or illegal conduct..."[15]), the obligation to be concerned about social problems and social orientation (to protect and advance the public interest).

Levy emphasized that not every code he examined included all of those ethical provisions; nor did his summary identify every type of ethical statement contained in the eighty-nine codes. He offered considerable interpretation and evaluation of the data, only some of which can be noted here. He suggested at least three criteria for evaluating codes of ethics: (1) the reasons for its existence, (2) its specificity and inclusiveness as a guide to professional conduct, and (3) its enforceability."[16] Levy did not attempt such a systematic evaluation of his sample of eighty-nine codes, but he did make the following observations: (a) codes of ethics are viewed by those adopting them as "an enabling rather than an intimidating medium of influence. And they exert every effort possible...to implement the code rather than enforce it."[17]; (b) the provisions relating to etiquette, fairness, professional orientation, all of which constitute obligations to one's professional colleagues, "are consistently included. This supports the hypothesis that the practitioner's relationship to his colleagues commands more attention in codes of ethics than does his relationship to his clients."[18]; (c) codes of ethics "do constitute some kind of normative influence for the individual or occupation or both and occasionally for the legislature or tribunal."[19]

6. Blanpied/Shelanski Survey of AAAS Affiliated Societies[20]

In the spring of 1975, William Blanpied of AAAS and Vivian Shelanski of the Harvard University Program on the Public Conceptions of Science conducted a survey of professional ethics activities among the 241 societies affiliated with AAAS. They solicited information about adopted or proposed codes of ethics and on structural arrangements within the societies concerned with developing or enforcing such codes.

Eighty societies responded, with forty-five indicating that they had either adopted some type of ethical code of their own or subscribed to that of another society. Thirty-three reported that they had no code, although eight stated that they were considering the possibility either of adopting one or establishing a committee to study the matter. Two of the respondents provided insufficient information to determine whether or not they had codes. The authors noted that fourteen of the societies submitted information indicating that the ethical codes were supported by "well defined enforcement procedures";[21] the authors provided no additional details, however. Of this latter group, seven were in the health and biomedical fields and four had "sizeable portions" of their membership located in industry. Reflecting back on the data, Blanpied and Shelanski concluded that "codes of ethics are being taken more seriously by the societies than they were five or six years ago."[22]

7. Frankel Survey of National Political Science Associations[23]

This 1975 survey of thirty-six national political science associations by Mark S. Frankel (Illinois Institute of Techology, formerly at Wayne State University) was designed to investigate the extent to which the political science profession had developed formal codes of ethics with provisions related to the use of human subjects in research. Sixteen associations responded, thirteen of which replied that they had neither adopted a code nor were considering doing so. Of the remaining three associations, one indicated that, although it had no formal code, it periodically issued advisory opinions on matters relating to professional ethics; another reported that it had plans to develop an ethical code in the near future; and a third replied that it was currently participating with other national professional associations in an effort to develop a comprehensive code governing social science research. Frankel concluded that "political scientists conducting research with human subjects do so without any explicit guidelines for their actions....The survey results should present a challenge to the profession to use its resources to promote meaningful and prescriptive discussions of the ethical issues and to formulate guidelines for the conduct of research."[24]

8. Bureau of Social Science Research Survey of Professional Societies[25]

As part of a study begun in 1974, the Bureau of Social Science Research conducted a survey of professional associations, most of which included social scientists among their members, to determine whether they subscribed to ethical codes explicitly dealing with the use of human subjects in research.

Thirty-nine associations were described as having had adopted some type of ethical code. Of those thirty-nine, twenty-one subscribed to codes with provisions relating to research involving human subjects and eight endorsed ethical codes having similar provisions that had been developed by other associations. An additional ten societies had adopted ethical codes that did not apply directly to research with humans. Among the latter group, several had codes with statements governing behavior towards clients, the public, professional colleagues and/or employers. The survey also identified twenty-one associations that had not formally adopted or endorsed any ethical statements. Four of these associations reported that they were in the process of developing a code of ethics.

In commenting on the data, the authors referred to "the existence of a formal code...as a necessary but not sufficient condition of effective professional self-regulation" and, with respect to code provisions relating to human subjects research, they concluded that "there appears to have been an accelerated movement in that direction recently."[26]

9. Eaton Survey of Scientific and Technical Societies[27]

In 1977-78, Muzza Eaton (Brooklyn College, CUNY) included a survey as part of her doctoral dissertation. She surveyed 216 scientific and technical societies in order to determine (1) the extent of scientific societies' activities related to issues of scientific freedom and responsibility, (2) the characteristics of societies associated with such activities, and (3) the societies' responses to a 1975 AAAS report on scientific freedom and responsibility. The latter report[28] had urged scientific and technical societies to form committees to investigate alleged breaches of scientific freedom and assist individuals who in the course of professional practice exposed themselves to economic and/or professional censure. The report also expressed support for the use of ethical codes and employment guidelines to reinforce and protect responsible professional behavior. Eaton reported on the responses received from 133 societies.

Fifty-five societies reported having a code of ethics and five replied that a code was under consideration. Eighteen societies noted the existence of employment guidelines. In the case of both the codes and the guidelines, the more applied science societies were more likely to have adopted them than were those in nonapplied disciplines. Only seven societies reported having boards of committees to investigate member requests for assistance on issues of scientific freedom and responsibility and, according to Eaton, 104 of the respondents "believed their society had no desire to establish a board or inquiry for issues related to scientific freedom and responsibility."[29]

Eaton noted "little evidence that scientific societies have any interest in the recommendations" of the AAAS report.[30] And although societies reported instances of conflict involving their members over scientific freedom and resonsibility, "few societies seem to be committed to scientific freedom and responsibility activities; less than half have any procedures which could be used to promote or support social responsibility.[21]

10. Wallace Survey of Professional Society Ethical Codes[32]

At the request of the American Fisheries Society Executive Director, Deborah Wallace conducted a survey of the codes of ethics of forty professional societies with the intent of using the findings to upgrade the AFS code of ethics. Seventeen societies responded and the codes of two additional associations were studied.

Six societies were without codes of their own, although at least one reported subscribing to codes adopted by two other societies. Codes from eleven respondents and the two societies included after the survey were reviewed. Wallace identified six code-related areas for study: (1) preambles and policy statements; (2) relationships between professionals; (3) relationship to the public and to the clients; (4) relationship between the professional and society; (5) relationship between the professional and resource; and (6) enforcement.

Wallace suggested that code terminology that might be subject to diverse interpretation may be made clear in the light of a preamble.[33] She observed that one topic "studiously avoided in the public welfare sections of all the ethical codes is the weapons issue" and urged that the AFS "at least recognize the existence of ethical ambiguities connected with military and intelligence agency employment."[34] With the exception of two societies, she characterized the enforcement mechanisms as "simple" and recommended that AFS adopt provisions for responding to member complaints of unprofessional conduct by employers.[35]

Summary

Almost all of the surveys described above focused primarily on the scope and content of ethical statements; some also gave passing attention to the procedures and activities employed by the societies to implement and enforce professional ethics. Only one survey (Eaton), however, involved a systematic investigation of implementation and enforcement practices; the same survey also examined the association of society ethics activities with selected characteristics of the societies. And only one study (Reynolds) attempted to develop a detailed classification scheme of ethical statements adopted by the societies surveyed.

Collectively, several common themes emerge from these earlier surveys. They may be stated as follows: (1) a substantial number, although by no means a majority, of scientific and engineering societies have adopted some type of ethical statement, e.g., codes, guidelines, advisory opinions; (2) interest in and adoption of these ethical statements has gained momentum in

recent years, i.e., since the late 1960s; and (3) the kinds and uses of monitoring and enforcement procedures are varied and lag behind the development of ethical rules of conduct. We shall refer back to these themes as we proceed with our own survey analysis.

References

1. William Petersen, "Forbidden Knowledge," in Saad Z. Nagi and Ronald G. Corwin (eds.), The Social Contexts of Research (New York: John Wiley & Sons, Inc., 1972), pp. 289-321.

2. Ibid., p. 289, Petersen also surveyed administrators in charge of research at major American universities. Those findings, however, are beyond the scope of this report.

3. Ibid., p. 290.

4. In subsequent correspondence with one of the co-authors, Petersen was unable to recall the size of his original sample of professional societies or the survey response rate. William Petersen, personal correspondence to Mark S. Frankel, June 1979.

5. Ibid., pp. 296-97.

6. The results of the survey were not published. The original responses of the societies are on file in the office of the AAAS Committee on Scientific Freedom and Responsibility.

7. Harold Orlans, Contracting for Knowledge (London: Jossey-Bass Pub., 1973).

8. U.S. Congress, House. Committee on Government Operations. The Use of Social Research in Federal Domestic Programs. A staff study prepared for the Research and Technical Programs Subcommittee, U. S. House of Representatives, 90th Cong., 1st sess., parts 1-4, 1967.

9. Unless otherwise noted, the remainder of this discussion is taken from chapter 3 of Orlans' study, op. cit., pp. 51-80.

10. Ibid., p.x.

11. Paul Davidson Reynolds, Value Dilemmas Associated with the Development and Application of Social Science. Report submitted to the International Social Science Council, UNESCO, March 1975.

12. Paul Davidson Reynolds, Ethical Dilemma and Social Science Research (San Francisco: Jossey-Bass Pub., 1979), p. 243.

13. Ibid., pp. 244-45.

14. Charles S. Levy, "On the Development of a Code of Ethics," Social Work, 19: 207-16, March 1974.

15. Ibid., p. 214.

16. Ibid., p. 207.

17. Ibid., p. 208.

18. Ibid., p. 213.

19. Ibid., p. 208.

20. "Codes of Ethics of Professional Scientific Societies," Newsletter of the Program on Public Conceptions of Science, No. 15, April 1976, pp. 3-5.

21. Ibid., p. 4.

22. Ibid., p. 5.

23. Mark S. Frankel, "Research Report: Ethics and Political Science Research: The Results of a Survey of Political Science Associations," Newsletter on Science, Technology and Human Values, No. 18, January 1977, pp. 18-19.

24. Ibid., p. 19.

25. Robert T. Bower and Priscilla de Gasparis, Ethics in Social Research (New York: Praeger Pub., 1978). For the most part, the data and findings discussed here are drawn from Appendix A, pp. 70-79.

26. Ibid., p. 55.

27. Muzza Eaton, "Scientific Freedom and Responsibility Activities of Scientific Societies," Science, Technology, and Human Values, No. 29, Fall 1979, pp. 24-33.

28. John T. Edsall, Scientific Freedom and Responsibility, A Report of the AAAS Committee on Scientific Freedom and Responsibility (Washington, D.C.: American Association for the Advancement of Science, 1975). (See Appendix A.)

29. Eaton, op. cit., p. 29.

30. Ibid.

31. Ibid.

32. Deborah N. Wallace, "Professional Ethics in Applied Science and Engineering: Results of a Small Survey," Fisheries, 3:16-21, 42, July-August 1978.

33. Ibid., p. 16.

34. Ibid., p. 18.

35. Ibid., p. 20.

3

The Project Survey

To build upon earlier surveys as well as to fill in some of the gaps that they left uncovered, a survey of the ethical rules and practices of 241 scientific and engineering societies affiliated with AAAS was undertaken as part of the Professional Ethics Project.* A 28 question survey (see Appendix B) was mailed in June 1979 from the office of the AAAS Committee on Scientific Freedom and Responsibility. Through July 16, 116 responses were received, a 47.8% response rate. Follow-up telephone calls were then made to 123 of the remaining 125 societies and two foreign affiliates were recontacted by mail. Sixty-two additional societies subsequently responded, bringing the total number of responses to 178, a 74% response rate.

Thirty-two of the responses are not included in the data presented here. Twenty-five chose not to return the questionnaire, giving the following reasons: (a) survey inapplicable because society is an honor society (4), a voluntary association (1), a part of a university (1), a technical consulting organization (1), a consortium of societies (4), a society only arranges and sponsors interdisciplinary meetings of scholars (1), a membership organization, not a disciplinary professional society (1), a scientific society which does not consider itself a professional society (2), no reason provided (1); (b) too busy with other matters (2**); (c) involved in litigation (1); (d) forwarded survey to another society representative (1); (e) has no code or mechanisms related to professional ethics (4); (f) subject of professional ethics up for review, and it would be inappropriate to respond at this time (1). Seven of the questionnaires were omitted by the investigator: one case involved a graduate student association, two were student honor societies, two were professional honor societies, and two others had institutional members only. Thus, the data reflect survey responses from 146 societies, plus one society that forwarded its code of ethics without completing the survey.

Survey Sample and Respondents

This study sample included the 241 science and engineering societies affiliated with the AAAS at the time of the survey (see Appendix A).*** The

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* In the survey, "professional ethics" referred to those principles intended to define the rights and responsibilities of scientists, engineers and practitioners in their relationship with each other and with other parties, including employers, research subjects, clients, students, etc. It is clear from the responses that those completing the questionnaire interpreted "principles" to refer to rules of conduct and not to any underlying reasons for such rules. Throughout this report the term "rules" is substituted for "principles", the language used in the questionnaire.

** One of these forwarded its ethical code which is included in some of the data tabulations found in Part I.

***One of the survey respondents has since withdrawn from its affiliation with the AAAS.

Table 1 Membership Size

Size	No.	%*
170 - 999	20	13.7
1000 - 4999	65	44.5
5000 - 9999	21	14.4
10,000 - 49,999	27	18.5
50,000 - 99,999	7	4.8
100,000 plus	3	2.1
No Response (NR)	3	2.1
Total	146	100.1

Table 2 Society Membership By Place of Employment

Employment	Plurality No.	Plurality %	Majority No.	Majority %
Academic	79	51.3	66	42.9
Industry	25	16.2	18	11.7
Government	9	5.8	4	2.6
Self-Employed	5	3.3	5	3.3
Other	7	4.6	4	2.6
NR	29	18.8	57	37.0
Total	154+	100	154+	100.1*

+ Includes six societies reporting equivalent figures for two categories and one reporting equivalent figures for three different categories.

Table 3 Type of Society (Discipline)++

Type	No.	%
Biology & Agriculture	37	25.2
Education & Communications	11	7.5
Physical Sciences & Math	24	16.3
Engineering & Technology	17+	11.6
Social & Behavioral Sciences	25	17.0
Medicine & Health Sciences	23	15.7
General	10	6.8
Total	147	100.1

+ Includes one society that responded by forwarding only its ethical rules of conduct.

++ See Appendix D for a listing of the societies in each category.

*(Note: Throughout the following tables percentage figures which do not add up to 100 percent are a result of rounding off.)

Table 4 Adoption of Ethical Rules +++

Yes	46	(30.7)
No	68	(45.3)
Subscribe to rules of another society	17+	(11.3)
Members subscribe to rules of their primary profession	19++	(12.7)
NR	0	
Total	150	(100)

\+ Includes one society responding that its members subscribe to the code of its parent society, but the latter society reported that it had no code.
Includes three societies that have also adopted rules of their own.
++ These are typically societies with a multidisciplinary membership.
+++ See Appendices E, F, G, and H for a listing of the respondents.

Table 5 Adoption of Rules According to Type+ of Society

Type	Rules	No Rules
Biology & Agriculture	8 (17.4)	25 (36.8)
Education & Communications	2 (4.4)	8 (11.8)
Physical Sciences & Math	5 (10.9)	13 (19.1)
Engineering & Technology	8 (17.4)	3 (4.4)
Social & Behavioral Sciences	10 (21.7)	10 (14.7)
Medicine & Health Sciences	11 (23.9)	6 (8.8)
General	2 (4.4)	3 (4.4)
Total	46 (100.1)	68 (100)

\+ Includes only the 114 societies responding "yes" or "no" to question # 2.

Table 6 Adoption of Rules According to Size+

Size	Rules	No Rules
170 - 999	2 (4.6)	8 (11.9)
1000 - 4999	10 (22.7)	43 (64.2)
5000 - 9999	13 (29.6)	5 (7.5)
10,000 - 49,999	13 (29.6)	11 (16.4)
50,000 - 99,999	3 (6.8)	0
100,000 plus	3 (6.8)	0
Total	44++ (100.1)	67+++ (100)

\+ Includes only the 114 societies responding "yes" or "no" to question # 2.
++ Two societies having rules did not provide data on membership size.
+++ One society in this group did not provide data on membership size.

criteria for AAAS affiliation include: a sufficiently large membership (usually at least 200); in existence for a sufficient time (usually at least five years) "to give promise of continued support and worthwhile activity", and "its aims are already directed toward, or consistent with, one or more of the objectives of the Association."* While the affiliate societies do not constitute the entire universe of American engineering and scientific societies,** they do represent a wide spectrum of scientific and engineering fields that are encountered in a variety of settings.

The 146 societies from which survey data were received represent a cumulative membership of 1,872,412 individual members*** and 1,008 institutions (e.g., universities or other professional societies), with the least number of individual members in a single society at 170, the most at 193,000. A breakdown of the societies responding by size is given in Table 1. Table 2 presents a quantitative breakdown of the societies' membership by place of employment. As the figures indicate, more than half (84) of the respondents have the majority of their members in academic or industrial settings and the number is even higher (104) for those with a plurality of members in those settings. Only 13 societies reported having a majority of their members in some other setting. A variety of other employment/membership categories were cited by the respondents, including (1) military, (2) church-related institutions, (3) amateur members, (4) students, (5) non-profit agencies, (6) hospitals, (7) nursing homes, (8) research institutes, (9) construction, (10) retirees and emeritus members, (11) publishing firms and (12) libraries. Finally, Table 3 categorizes the societies according to type of discipline**** and portrays the broad spectrum of scientific and engineering disciplines represented by the survey respondents.

Organization of the Chapter

The remainder of the Chapter is divided into three parts. Part I reports data pertaining to questions 2 through 5 of the survey, all of which are concerned with the societies' consideration/adoption of ethical rules of conduct. The societies were also requested to forward copies of any statements of ethical rules currently in force. Using the materials provided by the societies, the rules found in the statements are classified according to content by a classification scheme developed as part of this project. Part II presents data for questions 6 through 27, which focus on the policies and procedures available to the societies for implementing and enforcing rules of professional conduct, and for question 28, which sought to identify major concerns regarding professional rights and responsibilities as expressed by the societies' membership.

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* Handbook, AAAS (Washington, D.C.: AAAS, 1979) pp. 137-38.

** The National Academy of Sciences publication, Scientific, Technical and Related Societies in the United States, ninth edition (1971) lists 531 societies, 168 of which were AAAS affiliates when the survey was conducted.

*** Some qualification of this figure is in order. In one sense it understates the total number of members since several associations did not provide membership figures. In another sense, however, it overstates the total number of professional members because of overlapping membership--one person with membership in more than one society--and it includes students and laypersons if they are part of the society's membership. (At least 16 of the responding societies open their membership to students and/or laypersons; see Appendix C).

****See Appendix D for the complete classifcation scheme.

Part III reviews the data reported in Parts I and II with an eye toward identifying and assessing any trends or patterns in the survey responses that might shed further light on ethics activities in the scientific and engineering societies.

Where appropriate, a numerical summary of the data is presented--the number of respondents and the percentage (in parentheses) of the total number of responses; in some cases, a breakdown of the responses according to the size and type of society and to the employment of its members is also given. In most instances, the numerical summary is followed by a brief digest of the comments provided by the societies.* The designation "NR" indicates no response.

Part I: Statements of Ethical Rules

Ethical Rules (Questions 2-5)

#2. Has your society adopted any statement of ethical principles?

The 46 societies responding that they had adopted ethical rules of conduct (see Table 4) represent 958,442 individual members, or 51.2% of the total number of members represented by the 146 societies included in this analysis. The remaining societies that reported subscribing to the rules of another society (excluding the 3 societies that have also adopted rules of their own) or whose members subscribe to rules adopted by their primary profession account for 468,862 members, or 25% of the total. Thus a total of 1,427,304 members, or 76.2% of those scientits and engineers represented by the societies included in the survey data, are apparently governed by some statement(s) of ethical rules.**

The presence or absence of ethical rules was examined with respect to the type and size of the societies as well as the employment of their members. Table 5 presents the breakdown according to type of society. Less than half of the total number of societies for each of the seven categories in Appendix D reported the adoption of ethical rules. Both "engineering and technology" and "medicine and health sciences" fall one shy of the fifty-percent level. The lowest rate of adoption within the different categories (18.2%) occurs among the "education and communications" societies, while the highest rate (47.8%) is found in the "medicine and health sciences." However, when one takes into account societies subscribing to the ethical rules adopted by another society (Appendix G), then the societies categorized as "engineering and technology" have the highest rate (76.5%).

When considered in the light of the data on membership size of the 146 societies included in the survey analysis (see Table 1), the data reported in Table 6 indicate that the societies with memberships reported to be above 5,000 are almost four times more likely than those with fewer than 5,000 members to have adopted ethical rules (55% vs. 14%). Without further analysis, however, it is not possible to determine the precise role of size in relation to the adoption of ethical rules. In terms of member employment profiles, those societies with a plurality of their members employed in academic settings account for the largest number (18) of soci[illegible] reporting the adoption of ethical rules (Table 7); but they also ac[illegible] the lowest percentage (22.8%) of their total number included in the surve[illegible]ble 2).

* The comments referred to are taken from both the q[illegible]nnaire and, where provided, accompanying materials. In many instances, however, the questionnaire was the only source of data.

**Since the data do not permit the identification of instances of overlapping membership, these figures are somewhat inflated.

Table 7 Adoption of Rules According to Member Employment[+]

Employment Plurality	Rules	No Rules
Academic	18 (43.9)	47 (83.0)
Industry	10 (24.4)	8 (14.0)
Government	6 (14.6)	1 (1.8)
Self-Employment	4 (9.8)	0
Other	3 (7.3)	1 (1.8)
Total	41[++] (100)	57[+++] (100.6)

\+ Includes only the 114 societies responding "yes" or "no" to question # 2.
++ Includes two societies reporting equivalent employment figures for two categories; seven societies did not report employment data.
+++ Includes two societies reporting equivalent employment figures for two categories; thirteen societies did not report employment data.

Table 8 Form of Ethical Rules

Formal Codes	36	(22.4)
Advisory Opinions	10	(6.2)
Resolutions	9	(5.6)
Guidelines	18	(11.2)
Other	11	(6.8)
NR	77	(47.8)
Total	161[+]	(100)

\+ More than one response was possible.

Table 9 Review and Modification Procedures

Yes	44	(30.1)
No	23	(15.8)
NR	79	(54.1)
Total	146	(100)

#3. If yes, what form do those principles take?

Although codes of ethics were the most common form taken by the ethical rules, the societies also reported issuing rules in the form of advisory opinions, resolutions and guidelines (Table 8). In all but a few cases, the guidelines, cited by the societies referred to rules of conduct governing relations with their members' employers. Some societies used advisory opinions or resolutions as the mechanisms for communicating major ethical rules to members, while others issued them to supplement or elaborate upon basic rules initially promulgated as part of a code of ethics. A number of societies also prefaced their statement of ethical rules with preambles that varied in content, but typically enunciated the main purposes of the society and, in some cases, addressed the matter of setting priorities among professional duties. Finally, under the category "other", respondents referred to these alternative forms: position papers; policy statements; certification standards; and provisions in by-laws or constitutions.

#4. Does your society have procedures for reviewing and modifying the ethical principles to which your members subscribe?

The circumstances and values that precipitate the moral dilemmas facing scientists and engineers are constantly evolving. New discoveries in or applications of science may solve previously intractable technical problems, but they also may raise new ethical concerns. The capacity of professional societies to review these emerging issues, to assess the value of existing ethical rules, and to modify those rules if necessary is of no small consequence.

Substantially more than half of the responding societies reported having some type of procedures for reviewing and modifying their ethical rules (see Table 9). And as the data in Table 10 indicate, if size were a handicap to developing such procedures, it was more likely to be so among the smaller societies whose fewer number of members would each have to bear a greater share of the burden in implementing review and modification than would their counterparts in the larger societies.

#4a. Please elaborate on any procedures for review and modification.

Of the 44 societies responding "Yes" to question 4, 41 provided some elaboration of their procedures. The comments ranged from reviews at "irregular intervals" to descriptions of the review process. Generally a committee recommends revisions to a higher level body, e.g., House of Delegates, Board of Directors, Legislative Council, which then acts on the recommendations.

#4b. Since 1960, how often has such a review occurred?

Table 11 reports data on the use of review procedures by the societies and Table 12 examines their use in relation to society size. Of the 44 societies with such procedures, 38 reported having used them at least once and five have employed them more than 10 times since 1960. When size is taken into account, the larger societies are as likely, if not more so, as the smaller ones to undertake review and modification. Whether this is due to a lack of perception of the need for review by the smaller societies, or their limited resources (money and manpower) or some other factor cannot be readily determined.

#4c. What year(s) did the <u>most recent</u> review and modification occur?

Twenty-eight of the 38 societies reporting at least one review since 1960 provided data for this question (Table 13). There was much greater use of review since the mid-1970s, which may reflect the increasing public and professional concern throughout the decade with the ethical and social implications of basic

Table 10 Review and Modification Procedures According to Size

Size	Procedures	No Procedures
170 - 999	2 (4.7)	2 (9.5)
1000 - 4999	8 (18.6)	12 (57.1)
5000 - 9999	12 (27.9)	2 (9.5)
10,000 - 49,999	12 (27.9)	4 (19.1)
50,000 - 99,999	6 (14.0)	1 (4.8)
100,000 plus	3 (6.9)	0
Total	43+ (100)	21++ (100)

\+ One society did not report size data.
++ Two societies did not report size data.

Table 11 Use of Review Procedures

Review Conducted	No. of Societies
None since 1960	5 (11.4)
One to five times	29 (66.0)
Six to ten times	4 (9.1)
More than ten times	5 (11.4)
NR	1 (2.3)
Total	44 (100.2)

Table 12 Use of Review Procedures According to Size

	Frequency of Use				
Size	None	1-5	6-10	10 or more	Total
170 - 999	0	2	0	0	2
1000 - 4999	2	4	1	1	8
5000 - 9999	2	8	0	1	11
10,000 - 49,999	1	9	1	2	13
50,000 - 99,999	0	3	2	0	5
100,000 plus	0	3	0	0	3
Total	5	29	4	4+	42++

\+ One society in this category did not report size data.
++ One society did not report frequency-of-use data.

Table 13 Date of Review+

Year of Review	No. of Societies
1963	1
1970	1
1971	1
1972	1
1974	3
1975	2
1976	2
1977	3
1978	10++
1979	4
Total	28

\+ Reviews that overlap two or more years are recorded for the last year of the review only.
++ Three of the four were still under review at the time of the survey.

Table 14 Considering Adoption of Ethical Rules

Yes	12+	(8.2)
No	80++	(54.8)
NR	54	(37.0)
Total	146	(100)

\+ See Appendix I for a list of the respondents.
++ Includes five societies that answered "yes" to question 2 and 20 whose members are "covered" by the rules of another society.

research (especially that involving human subjects) and technological application.

#5. *If ethical principles have not yet been adopted is your society currently studying the prospects of doing so?*

Twelve societies reported that study was underway regarding the possible adoption of ethical rules (Table 14). Of the 68 societies responding that they had no ethical rules (see Table 4), 51 observed that no effort was currently being undertaken to consider the need for such rules.

Those responding "No" to this question were asked to elaborate on the reasons why their societies had not developed rules of professional conduct. Several respondents observed that the matter had simply never been raised for consideration. Other reasons given included the following: the society is "apolitical"; high ethical standards are "assumed"; the association is concerned with teaching, not research; the matter has been deferred "to the judgment of the institutions at which members are employed."

Classification of Ethical Rules

In order to acquire a better understanding of the scope and thrust of the various ethical rules adopted by the societies, the statements were classified into the following categories.

I. Member Directed

A. The members' conduct and comportment as professionals.
B. The rights and privileges of members.

II. Profession Directed

A. Members' responsibility to colleagues.
B. Members' responsibility to the profession.

III. Employer/Sponsor Directed

A. Members' responsibility to employers.
B. Members' responsibility to sponsors, i.e., those who finance their research/services through contracts, grants or consulting agreements.

IV. Client Directed*

Members' responsibility to clients, employees, patients, research subjects (animal or human) or students.

V. Society Directed

Members' responsibility to the community in which they live and work or to society in general.

VI. Other Directed

The responsibility of others affected by, affecting, or concerned with the professional activities of members.

*We adopt the traditional meaning of the term "client": A person (or other being) under the supervision or protection of another.

VII. General

Statements that are either so broad as to resist classification into a single category or substantively different from those classified into the other categories.

Societies responding that they had adopted some statement of ethical rules were requested to forward copies along with the questionnaire. Those that failed to do so were sent a follow-up letter. Fifty-seven societies submitted codes of ethics, advisory opinions, and other documents which constituted a total of 74 unique statements* of ethical rules. A total of 191 distinct rules of conduct were identified in these 74 statements, which were then classified according to the above scheme. Items repeated in more than one source (codes, guidelines, etc.) from a single society are noted only once; proposed or draft statements are not included. A complete listing of all rules appears in Appendix J. In addition, 12 statements included references to the implementation and enforcement of the society's ethical rules.

Table 15 presents a quantitative picture of the number of distinct rules appearing in the 74 statements and the frequency with which they appeared. The category with the largest number of distinct rules (77) is "Member Directed", which included those rules relating to professional comportment and professional rights and privileges. Not too far behind (70) are the rules pertaining to the professional's treatment of clients, employees, patients, research subjects and students. However, when the frequency with which these rules appear is taken into account, those under "Member Directed" (270) clearly outdistanced those in any other category. In the category "Society Directed", the numbers for both distinct rules and their citation rank sixth and fifth respectively among the seven categories.

No single rule of conduct is present in every statement. In fact, there are few cases of any ethical rule appearing with considerable frequency. Only six of the 191 distinct rules of conduct are cited in 20 or more statements. Eighty-one (42%) of the distinct rules are referred to only once in the 74 statements examined. The most frequently cited rule (24 times) admonished members "to maintain an appropriate level of professional competence."

In only 12 cases did the statements examined refer to implementation or enforcement procedures and in only six of those statements was there reference to penalties for non-compliance. One statement indicated that the failure to report possibly unethical conduct was itself a violation of the society's ethical standards. In only one instance was there mention of any benefits ("assistance to (members) whom the committee has deemed to have been treated unprofessionally" by an employer) to the professional for compliance. Societies may, of course, refer to matters of implementation, enforcement, discipline and support in other official documents.

There are more qualitative observations worth noting about the nature of the ethical rules adopted by the societies. No two statements are obviously inconsistent, although conflict between two or more statements is quite possible depending on their interpretation. For example, the first rule cited under "responsibility to employer" obligates members to perform "with unqualified loyalty to the employer." Yet, professionals may be in conflict with their employer if they follow the sixteenth rule under "responsibility to clients", which calls on them to seek change within the organization if "existing programs are not in their client's best interest." And there is certainly tension between the professional's obligation to "speak out against abuses in areas affecting the public interest" (the first rule under "Society Directed") and

*Similar statements adopted by different societies are treated as one unique statement.

Table 15 Number & Frequency of Ethical Rules

Category	No. of Distinct Rules		No. of Times Cited	
I. Member Directed	77	(40.1)	270	(36.1)
A. Professional Conduct & Comportment	40	(20.9)	212	(28.3)
B. Rights & Privileges	37	(19.8)	58	(7.7)
II. Profession Directed	11	(5.8)	123	(16.4)
A. Responsibility to Colleagues	7	(3.7)	86	(11.5)
B. Responsibility to Profession	4	(2.1)	37	(4.9)
III. Employer/Sponsor Directed	15	(7.9)	114	(15.2)
A. Employer	13	(6.8)	104	(13.9)
B. Sponsor	2	(1.1)	10	(1.3)
IV. Client Directed	70	(36.7)	172	(23.0)
A. Clients (general)	16	(8.4)	29	(3.9)
B. Employees	7	(3.7)	16	(2.1)
C. Patients	14	(7.3)	44	(5.9)
D. Research Subjects	24	(12.6)	62	(8.3)
E. Students	9	(4.7)	21	(2.8)
V. Society Directed	7	(3.7)	54	(7.2)
VI. Other Directed	8	(4.2)	8	(1.1)
VII. General	3	(1.6)	8	(1.1)
Total	191	(100)	749	(100.1)

Table 16 Society Staff/Office for Ethics

Yes	23	(15.8)
No	115	(78.8)
NR	8	(5.5)
Total	146	(100.1)

and their duty to "refrain from or exercise due care in criticizing another professional's work in public..." (the fifth rule under "responsiblility to colleagues"). One example of a society statement which explicitly seeks to resolve such conflicts is a guideline adopted by the Institute of Food Science and Technology in the United Kingdom. This society was not part of our project survey, but the statement is an example of how one group has approached this dilemma (see Appendix W).

There are several similar instances of potential conflict which some of the societies have attempted to minimize by referring to priorities among professional duties and responsibilities in a preamble to their statement of ethical rules or in the rules themselves. For example, the American Dental Association includes in its code's preamble the statement that the profession has a "primary duty of service to the public." And the Fundamental Canons of the American Society of Civil Engineers' Code of Ethics states that "Engineers shall hold paramount the safety, health and welfare of the public..." (see Appendix R). It remains to be seen, however, whether this approch is successful in transmitting clear signals to society members regarding the resolution of conflict between two or more rules of conduct.

Part II: Policies and Procedures

Staff and Committee Roles (Questions 6 and 7)

#6a. Does your society have staff and an office designated as responsible for matters relating to professional ethics?

#6b. How many full-time or part-time staff are currently assigned this responsibility?

The responses to these questions are statistically presented in Tables 16-19. As shown in Table 16 only 23 societies reported having "staff and an office designated as responsible" for professional ethics matters, although several of the societies indicated that a variety of staff persons are frequently called upon to handle such issues as they surface. When those responses are broken down by size of membership (Table 17) it is not surprising that staff designated as responsible for ethics matters for the most part tend to be more frequently found in the larger rather than the smaller societies. The number of part-time staff is nearly double that of those assigned full-time to ethics matters (Table 18). Only one society with membership size under 10,000 reported having a staff member responsible for ethics matters on a full-time basis (Table 19).

#6c. What are the specific responsibilities of such staff?

Some staff are responsible for screening complaints, which might include a preliminary investigation of the evidence, while others provide administrative support for a formally constituted ethics body. In some cases, the staff are also assigned responsibility for an initial effort at mediating the dispute.

#7a. Are there standing or ad hoc committees responsible for matters relating to professional ethics?

Although only 23 societies reported having staff designated as responsible for ethics matters, more than twice that number (54) noted the existence of committees that were responsible for matters relating to professional ethics (Table 20). The presence of these committees is more widely distributed across the societies when membership size is considered than is the case with staff (Table 21). Since the members on such committees volunteer their time while staff are financially compensated, the difference in distribution

Table 17 Ethics Staff According to Size

Size	No. of Societies with Ethics Staff/Office
170 - 999	1 (4.6)
1000 - 4999	2 (9.1)
5000 - 9999	3 (13.6)
10,000 - 49,999	9 (41.0)
50,000 - 99,999	6 (27.3)
100,000 plus	1 (4.6)
Total	22+ (100.2)

+ One society did not report size data.

Table 18 Time Commitment of Staff+

No. of Staff (No. of Societies)

Part-time	Full-time
1 (11)	1 (4)
2 (2)	2 (2)
	3 (1)

+ Three societies responding "yes" to question 6a. did not provide a number for question 6b.

Table 19 Commitment of Staff According to Size

Size	No.part-time staff 1	2	No.full-time staff 1	2	3
170 - 999	1	0	0	0	0
1000 - 4999	2	0	0	0	0
5000 - 9999	2	0	1	0	0
10,000 - 49,999	3	1	2	0	0
50,000 - 99,999	3	1	1	1	0
100,000 plus	0	0	0	0	1
Total	11	2	4	1+	1

+ One society did not report size data.

Table 20 Committees for Professional Ethics

Yes	54 (37.0)
No	79 (54.1)
NR	13 (8.9)
Total	146 (100)

Table 21 Ethics Committees According to Size

Size	No. of Societies with Ethics Committees
170 - 999	8 (15.1)
1000 - 4999	12 (22.6)
5000 - 9999	10 (18.9)
10,000 - 49,999	15 (28.3)
50,000 - 99,999	6 (11.3)
100,000 plus	2 (3.8)
Total	53+ (100)

+ One society did not report size data.

Table 22 Ethics Staff & Committees According to Type of Society

Type	Staff		Committee(s)	
	Yes	No	Yes	No
Biology & Agriculture	2	32	9	24
Education & Communications	1	10	4	5
Physical Sciences & Math	3	17	6	15
Engineering & Technology	5	11	8	7
Social & Behavioral Sciences	4	20	10	13
Medicine & Health Sciences	7	16	14	8
General	1	9	3	7
Total+	23	115	54	79

+ Eight societies did not respond to the question regarding staff.
Thirteen societies did not respond to the question on committees.

Table 23 Professional Ethics Complaints+

	No. of Reporting Societies		No. of Complaints		Range
Member against member ++	31	(19.6)	432+++	(52.6)	1-165(mean=14.4)
Member against non-member	14	(8.9)	214	(26.0)	1-170(mean=15.3)
Non-member against member	5	(3.2)	17+++	(2.1)	4-5 (mean= 4.3)
No complaints received	75	(47.5)	0		
NR	24	(15.2)	0		
Unassigned complaints‡	1	(0.6)	159	(19.3)	
Category checked, no number	8	(5.1)			
Totals	158‡‡	(100.1)	822	(100)	

+ Nineteen societies that have not adopted any statements of ethical principles reported receiving complaints relating to professional ethics.
++ In some cases, the "member" referred to was an institution or organization, not an individual.
+++ One society reported that 50 percent of its complaints were of this type, but did not provide a number.
‡ Not assigned to one of the three complaint categories.
‡‡ Includes societies reporting complaints in more than one category.

between the two may reflect differences in the fiscal resources available to the societies, with the larger societies in a better position to afford paid staff than their smaller counterparts.

Table 22 breaks down the responses to questions 6a. and 7a. according to type of society. The "medicine and health sciences" category ranks first in the number of societies having both staff and committees assigned responsibility for handling ethics matters. In terms of the total number of societies in each classification category, the "medicine and health sciences" and the "engineering and technology" societies rank first and second in the proportion of societies with ethics staff and committees, a ranking that is consistent with their high rate of adoption of ethical rules (either their own or that of another society) relative to the other types of societies.

#7b. What is the scope of responsibility of the committee(s) listed above?

The committees listed by the societies perform a variety of duties. While some investigate alleged violations of professional ethics, others are responsible for periodically reviewing and revising the society's code of ethics. Committees also serve as a hearing board; develop disciplinary procedures; counsel members; issue public statements on matters involving professional ethics or academic freedom; educate members on their rights and responsibilities; and recommend sanctions to be applied in specific cases. In at least three cases, the committee has the authority to proceed on its own to raise questions of a possible violation of professional ethics.

Complaint Procedures (Questions 8-11)

#8. Since 1970, approximately what number of complaints involving professional ethics (including rights or responsibilities) have been received?

Table 23 indicates the number of complaints reported by the societies and Table 24 presents the same data when categorized according to the different types of societies. Forty-five societies reported having received complaints involving professional ethics since 1970; only 36 were able to supply numbers, however.* Consequently, only 25% of the 146 societies reported a total of 822 complaints averaging 22.8 complaints for each of the 36 respondents.

The largest number of complaints was the "member against member" type, a finding which tentatively does not support the contention that professionals traditionally have been reluctant to "turn in" their colleagues. Most of the "member against non-member" complaints were made by professionals against their employers, which may reflect the tension that presently attaches to the role of the professional in large bureaucratic organizations in the public and private sectors. Perhaps most interesting, particularly when one recalls events during the 1970's intended to enlarge the scope of and to protect the rights of consumers, patients, research subjects, etc., is the relatively few reported complaints by "non-members against members."

When broken down by type of society (Table 24), the figures show a fairly close distribution in the number of complaints across four of the seven categories. Of interest, however, is the fact that in each of those four categories one society accounted for more than 73% of the total number of complaints, and in three cases it was more than 80%. Indeed, of the 822 complaints

*Several of those reporting complaints commented that precise figures for ethics complaints received by their society were not readily available.

reported, 645 (78.5%) were registered by just four societies, with the remaining 237 complaints distributed among 32 societies. When one considers that 75 societies reported that they had experienced no complaints since 1970, it is clear that, for whatever reason, very few of the societies involved in the survey are aware of receiving complaints either from their members regarding perceived infringements of professional rights and privileges or from others claiming unethical conduct on the part of their members.*

#9. What procedures exist for a society member or non-member to bring such a complaint before your society?

Seventy societies** responded with a description of their procedures, ranging from "ad hoc" and "informal" to highly structured. In some cases the complaints had to be notarized. Certain societies required that complaints first be filed with a local chapter before submission to the national office. In another instance, no complaints are considered by the society unless "made by a party directly involved in the alleged violation." And one society requires that the charge "be signed by five or more voting members" before it can be formally reviewed. Several societies qualified their responses with "any society member may bring a complaint...," leaving it unclear as to whether the same procedure(s) could be followed by non-members. A number of societies, however, specifically referred to "non-members" in describing their procedures. Finally, 11 societies which reported subscribing to some statement of ethical rules did not list any procedures by which a complaint could be initiated.

#10. Please describe the efforts by your society to inform members and the public about procedures for bringing a complaint relating to professional ethics.

Several types of mechanisms for informing members were noted by 44 societies. The distribution to members of the society's bylaws or constitution was the most frequently cited method. Second in frequency was the periodic publication of the procedures in the society's journal, newsletter or bulletin. Symposia and panels at national, regional or local meetings of the society were next in frequency. One society reported that "each new member signs a statement that he/she will abide by the Code." Whether or not the complaint procedures are described at that time is uncertain. And another respondent observed, "Bert Lance says, 'If it ain't broke, don't fix it.'"

Six societies specifically referred to efforts to inform non-members of existing complaint procedures. Their efforts ranged from "none" or "very little" to the distribution of various materials "when requested by the public." One society noted that it was planning "to launch a campaign to make a consumer version of these standards available to the public." Finally, 31 societies which reported having complaint procedures did not indicate any means for informing members or non-members.

#11. How are outside parties (involved in the complaint) contacted?

Thirty-six societies responded. Four indicated that such procedures had not yet been developed; one observed that outside parties are "not contacted"; another noted that it was "not necessary" to contact outside parties; and one respondent wrote, "Informally, if at all." The other 29 volunteered two kinds of information--identifying either the person(s) contacting the outside party or the method (telephone or letter) used to make such contact.

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* As the data tabulations progressed, it became evident that some of the respondents held different notions about what constituted a complaint. This makes the data on this question somewhat suspect and its implications are discussed later in the Chapter.

**This figure obviously includes several societies which have not adopted ethical rules.

Investigation Procedures (Question 12)

#12. Does your society have procedures for investigating a complaint?

Forty-two societies, slightly more than a quarter of our usable sample, responded affirmatively (Table 25). Thus, most of the 45 societies which reported receiving ethics complaints (Table 24) have procedures for the purpose of investigating those complaints. As Table 26 shows, societies of all categories of size have established investigation procedures. But when compared against their total number included in the survey tabluation (Table 1), the larger societies are more likely to have such procedures. For those societies with 10,000 or more members, 55% of the respondents have procedures; for those with less than 10,000 the figure is only 20%. The societies were also asked a series of questions about the organization and structure of those procedures.

#12a. Who is responsible for deciding that an investigation is warranted?

Interestingly, 45 societies responded to the question including several which initially reported that they had no investigation procedures. A major difference among the societies is their preference for either a single or a collective decision-maker. There is also variation in the level at which the decision is made, ranging from the society President or Board of Governors to the secretary of the Ethics Committee.

#12b. What criteria are used in making the decision to investigate?

For the most part, the respondents referred to the conduct standards of the society, observing that an apparent violation of those standards would merit an investigation. One society commented that "All written complaints are investigated," while another noted that the decision to proceed with an investigation would depend on the "seriousness of the complaint with respect to the Society and the member's rights."

#12c. Who conducts the investigation?

Thirty-eight societies provided information. A small number of the societies delegate this responsibility to a single individual. By far, however, the largest number of respondents indicated that the investigation is conducted by a standing or ad hoc committee.

#12d. What are the powers of the investigator(s)?

Responses were received from 30 societies. Generally, the investigators' function is to gather pertinent information (by interviews, correspondence, etc.) and to recommend a course of action to some higher authority in the society. The information could be gathered "by request" and "persuasion." Consultation with the society's legal counsel is also available to those charged with investigatory responsibilities. In one case, the investigating body is further empowered to "discipline and censure."

#12e. Since 1970, approximately what percentage of complaints received have been investigated?

Although 45 different societies responded to question 8 (Table 24) as having received complaints involving professional ethics, only 34 provided specific figures for complaints investigated (Table 27). Among the four societies that together accounted for 78.5% of the 822 reported complaints, three responded that more than 51% had been investigated, while the fourth did not respond.

Table 24 Ethics Complaints According to Type of Society

Type	Societies Reporting Complaints	No. of Complaints
Biology & Agriculture	5	24
Education & Communications	1	3
Physical Sciences & Math	8	195
Engineering & Technology	8	199
Social & Behavioral Sciences	11	197
Medicine & Health Sciences	11	204
General	1	NR
Total	45+	822

+ Includes nine societies that did not provide numbers.

Table 25 Investigation Procedures

Yes	42	(28.8)
No	90	(61.6)
NR	14	(9.6)
Total	146	(100)

Table 26 Investigation Procedures & Society Size

Size	No. of Societies with Procedures	
170 - 999	5	(12.2)
1000 - 4999	10	(24.4)
5000 - 9999	6	(14.6)
10,000 - 49,999	13	(31.7)
50,000 - 99,999	5	(12.2)
100,000 plus	2	(4.9)
Total	41+	(100.2)

+ One society did not report size data.

Table 27 Investigation of Complaints Received Since 1970

% of Complaints Investigated	No. of Societies	
Less than 25%	8	(5.5)
From 26% to 50%	3	(2.1)
From 51% to 75%	5	(3.5)
More than 75%	18	(12.4)
NR	111	(76.6)
Total	145+	(100.1)

+ One additional society responded: "most".

Hearing Procedures (Questions 13 and 14)

#13. Does your society have procedures for hearing a complaint?

There is no significant difference between the figures tabulated for this question and those for question 12 (compare Tables 25 and 28). Even when size is factored in, there is no dramatic shift in the distribution of the responses (compare Tables 26 and 29). It should be noted, however, that in only 33 cases did societies report having both investigation and hearing procedures.

#13a. Who is responsible for deciding that a hearing is warranted?

Information was supplied by 36 societies. In several societies there is no decision to be made: if the "respondent (accused) requests" a hearing, one must be held. In other cases the decision is made by either an officer of the society or a designated committee. A few societies indicated that outside legal advice played an important role in the decision-making process.

#13b. What criteria are used for determining that a hearing should be convened?

Eleven of the 43 societies responding "Yes" to question 13 did not respond to this question. For some societies it is a matter of whether "sufficient evidence" existed in order to convene a hearing. In some instances, however, a hearing is held if the "need for more information" existed or if "conflicting claims and evidence" are present. Other respondents were not quite as specific, citing "various" criteria or noting that criteria were "not specified."

#13c. What representatives of the society participate in the hearing? How are they selected?

Thirty-two societies responded to either one or both of these questions. Responses varied considerably. In several instances, all or some of the members of the Ethics Committee are present. In at least one case, however, five members of the society, appointed by the President, participate and members of the Ethics Committee are specifically excluded. Some societies established special "judicial panels" to hear the case and several referred to the participation of the society's legal counsel.

#13d. Are the parties involved in the complaint permitted to have witnesses or legal counsel in their behalf?

Thirty-one of the 39 societies with hearing procedures (Table 28) responded, with all 31 allowing witnesses to participate in the hearing and 29 permitting the presence of legal counsel (Table 30). It is not known why two of the societies do not permit legal counsel to attend the hearing; neither is it known whether that is merely "routine" procedure readily subject to change upon the request of the parties involved. In any event, among those replying to the question an overwhelming number grant access to the hearing process by witnesses and/or counsel.

#13e. Are records of the hearing proceedings maintained by your society?
#13f. Access to the record of the hearing is:

Of the 39 societies with hearing procedures, 29 reported that they maintain records of the proceedings (Table 31). There are some differences in the rules governing access to the records (Table 32). With respect to the limitations to certain parties, for example, at least two societies exclude

Table 28	Hearing Procedures
Yes	39 (26.7)
No	91 (62.3)
NR	16 (11.0)
Total	146 (100)

Table 29	Hearing Procedures & Society Size
Size	No. of Societies with Procedures
170 - 999	4 (10.5)
1000 - 4999	10 (26.3)
5000 - 9999	6 (15.8)
10,000 - 49,999	10 (26.3
50,000 - 99,999	6 (15.8)
100,000 - plus	2 (5.3)
Total	38+ (100)

+ One society did not report size data.

Table 30	Witnesses/Legal Counsel at Hearing+	
	Yes	No
Witnesses	31	0
Legal Counsel	29	2

+ The same 31 societies responded to both parts of the question.

Table 31	Records of Hearing Proceedings
Yes	29 (19.9)
No	3+ (2.1)
NR	114 (78.1)
Total	146 (100.1)

+ One society noted that the state society "may" keep records.

Table 32	Access to Record Hearing
Open without restriction	1 (.7)
Limited to certain parties	21 (13.8)
Restricted by time	2 (1.3)
Other restrictions	4 (2.6)
No policy	8 (5.3)
NR	116 (76.3)
Total	152+ (100)

+ More than one response per society was possible.

the complainant from access to the record. Several noted that the general membership could gain access to the record, while others prohibit membership access unless consented to in writing by the "member under consideration." Other restrictions would be "determined by the specifics of the case" or, in the case of one of the larger societies, "the state societies." Eight societies reported that they had no formal policy regarding access.

#14. If your society does not have established procedures for investigating and/or hearing a complaint relating to professional ethics, how are such matters usually handled?

Two respondents answered "don't know." One answered that procedures were "being formulated." Thirty-one societies stated that complaints had never been received or that the question of procedures had never arisen. Thirty-nine societies described procedures that could be implemented if a need arose. Other comments included, for example, that complaints were handled "informally, as circumstances appear to dictate"; that "such complaints are handled on a personal diplomacy basis leading to acceptable resolution by all parties involved"; and one society volunteered that "in the past we tried to run somewhat thorough investigations. We found we lacked the resources. Now we handle matters informally."

Decision Procedures (Questions 15-17)

#15. Who is responsible for issuing a decision in a case involving a complaint relating to professional ethics?

Sixty-three societies provided some information in response to this question. In most cases, decision by committee was the rule and the committee was typically the highest-ranking deliberative body in the hierarchy of the society. Two societies indicated that the responsibility was divided between two committees depending on the severity of punishment.

#16. In cases where a decision is made, what criteria are used to evaluate a complaint relating to professional ethics?

Thirty societies answered this question. Most frequently mentioned was a "proven violation" of ethical standards. Other responses included "ad hoc" and "no formal criteria."

#17. Please list all parties routinely notified of the decision.

Forty-five societies responded. In a few instances, the "general membership" was notified. In several other cases, only "officially involved parties." One society responded that "no routine exists," and another commented that "in all probability on a need-to-know basis." Several referred to various society officers, and one responded that the membership was notified if the punishment involved "anything less than revocation" of membership. While it can be presumed that any non-member who registers a complaint is notified of the decision, there is no evidence to suggest that others who might be affected by the professional's actions in the future are alerted to the decision.

Appeal Procedures (Question 18)

#18. Does your society have procedures for appealing a decision relating to professional ethics?

The responses are reported in Table 33. Clearly, there are fewer societies with appeals procedures than with procedures for investigating and hearing

complaints (compare with Tables 25 and 28). When examined with respect to society size (Table 34), the largest decline occurs among the societies with less than 10,000 members. This may again reflect the costs involved in implementing yet another set of procedures, costs that the smaller societies may find difficult to bear.

#18a. Is an appeal automatically granted a hearing upon request?

#18b. If not, what criteria are applied to deciding that a hearing on an appeal is warranted?

Twenty-two of the 24 societies with appeals procedures responded (Table 35). Two of those responding "No" failed to list any criteria. One respondent indicated that the decision was "at the discretion of the President and/or Council." The fourth society listed six grounds on which an appeal could be based, including (a) appellant's rights prejudiced, (b) recommendations of the hearing committee were inappropriate to the conclusions, and (c) the sanctions are not appropriate.

#18c. Who decides that a hearing on an appeal will be granted?

Of the four societies responding that an appeal was not automatically granted, two answered this question. One noted that the decision was made by the society "president and or council" and the other responded that the decision could be made at one of two levels of the society -- either by the original hearing committee or by the national Executive Committee, with the latter having the final decision.

#18d. Please describe the efforts by your society to inform members and the public about existing appellate procedures on matters relating to professional ethics.

There were essentially no major differences between the responses to this question and those provided for question 10.

#18e. Since 1970, approximately how many decisions on matters relating to professional ethics have been appealed?

A total of only eight appeals cases since 1970 were reported by the societies (Table 36) and at least two of those were reported by two societies that indicated earlier that they had no appeals procedures. The data do not permit us to determine why so few cases (there were 822 reported complaints) were appealed.

Sanctions and Support Actions (Questions 19-26)

#19. What kinds of sanctions and support activities are available to your society to use in matters relating to professional ethics involving individual members?

The responses are numerically presented in Table 37 and 39. Sixty-two different societies reported the availability of sanctions, while 34 have support actions available. Expulsion from the society is the most frequently cited sanction while counseling is the most frequently mentioned support action. Forty-five societies reported that no sanctions are at their disposal; 47 indicated that no support actions are available to them. The following items were reported as sanctions under the category "other": cease and desist order; probation; rejection of manuscript; request for resignation; resignation with prejudice; revocation of certified status; suspension from society; and suspension of certification. "Other" support actions reported included: employment assistance; filing of amicus curiae brief if legal suit involved; identifying

Table 33	Appeals Procedures	
Yes	24	(16.4)
No	92	(63.0)
NR	30	(20.6)
Total	146	(100)

Table 34	Appeals Procedures and Society Size	
Size	No. of Societies with Procedures	
170 - 999	2	(8.7)
1000 - 4999	4	(17.4)
5000 - 9999	3	(13.1)
10,000 - 49,999	7	(30.4)
50,000 - 99,999	5	(21.7)
100,000 Plus	2	(8.7)
Total	23+	(100)

+ One society did not report size data.

Table 35	Appeal Granted on Request	
Yes	18	(12.3)
No	4	(2.7)
NR	124	(85.0)
Total	146	(100)

Table 36	Decisions Appealed	
None since 1970	25	(17.1)
One to Five	6	(4.1)
Six to Ten	0	
More than Ten	2	(1.4)
NR	113	(77.4)
Total	146	(100)

Table 37 Sanctions Available

Sanctions	No. of Societies
Expulsion from the society	52 (23.9)
Formal censure	39 (17.9)
Impeachment of a society officer for abuse of authority	22 (10.1)
Informal reprimand	34 (15.6)
Pecuniary fine	3 (1.4)
Recommendation for revocation of license	4 (1.8)
None	45 (20.6)
Other	19 (8.7)
Total	218+ (100)

+ More than one response per society was possible.

Table 38 Sanctions and Type of Society

Type	Expulsion	Censure	Impeachment	Reprimand	Fine	Revocation of License	None	Other	Total
Biology & Agriculture	7	5	5	8	1	1	17	3	30
Education & Communications	3	3	2	2	1	1	5	1	13
Physical Sciences & Math	7	5	4	3	0	0	5	2	21
Engineering & Technology	10	7	3	4	0	1	2	5	30
Social & Behavioral Sciences	8	6	3	7	1	1	7	2	28
Medicine & Health Sciences	14	12	3	8	0	0	5	6	43
General	3	1	2	2	0	0	4	0	8
Total+	52	39	22	34	3	4	45	19	173/218

+ Excludes those responding "none".

possible sources of financial support; negotiation; reassurance; referral to the most appropriate agency or organization; and reinstatement procedures.

When the data for sanctions and supports are compared, it is clear that the societies are more prepared to discipline members than they are to provide support for members who stand accused of wrongdoing or whose rights and privileges are threatened. In terms of resources, it is probably less costly to the societies to apply one of the several sanctions available to them than it is to commit time, skilled manpower and dollars to any of the support actions cited. And demonstrating the authority and readiness to take disciplinary action against "wayward" members may, more so than implementing support actions, be a more potent message of reassurance to outsiders that the profession is prepared to defend their interests. But whether these factors actually contribute to the disparity between the application of sanctions and the use of support actions cannot be definitively determined from the data.

The availability of sanctions and supports was also examined with respect to the type of society (Tables 38 and 40). The "medicine and health sciences" lead all types of societies in the number of sanctions and support actions reported. The "biology and agriculture" category recorded the largest number of societies reporting "none" for both sanctions and supports. With respect to the distribution of the various kinds of sanctions and support actions among the different society types, no clear pattern appears to have emerged from the data.

#20. Who is responsible for deciding which sanction or support activity will be employed?

In all but a few cases, the decision rests with a committee of some type. In several societies, those responsible for deciding upon sanctions differ from those who decide whether support services will be made available.

#21. For each of the sanctions or support activities checked in question 19, who is responsible for administering the action?

Administrative responsibility is typically in the hands of the chief executive officer of the society. In one society, an Office of Professional Relations provides members with counseling services. In some of the larger societies, this responsibility resides with the local or state branches.

#22. Please elaborate on the procedures employed to implement the sanctions and support activities checked in question 19.

Procedures vary, if they exist at all. In many cases, a letter informing the accused of the action taken is sufficient. In some cases, depending on the nature of the complaint, a member's employer is notified. When legal or financial assistance is available, members must file detailed written requests. If the complaint is against a member's employer, the latter may be censured with the decision announced in one or several widely distributed publications.

#23. Since 1970, approximately how many times has each of the sanctions checked in question 19 been used?

The responses are recorded in Table 41. The 249 applications are accounted for by only 16 societies, with one society reporting 132 or more than half of the total. Sixty-two societies had reported the availability of sanctions; thus, only about 26% have actually used them since 1970. Eight-nine societies did not respond to the question. Three of the applications (impeachment, fine and recommended license revocation) have not been used at all by those responding. The informal reprimand, which probably results in the least cost to the member and the society of those sanctions listed, is by far the more frequently applied.

Table 39 Support Actions Available

Support Actions	No. of Societies
Arbitration	12 (10.2)
Counseling	21 (17.8)
Financial Assistance	4 (3.4)
Legal Assistance	8 (6.8)
Mediation	20 (17.0)
None	47 (39.8)
Other	6 (5.1)
Total	118+ (100.1)

+ More than one response per society was possible.

Table 40 Support Actions & Type of Society

Type	Arbitration	Counseling	Financial Assistance	Legal Assistance	Mediation	None	Other	Total+
Biology & Agriculture	3	4	0	1	3	17	1	12
Education & Communications	2	1	1	1	3	5	1	9
Physical Sciences & Math	1	1	0	2	0	7	0	4
Engineering & Technology	1	2	1	1	3	3	1	9
Social & Behavioral Sciences	2	3	1	1	4	6	2	13
Medicine & Health Sciences	3	7	0	1	5	6	1	17
General	0	3	1	1	2	3	0	7
Total	12	21	4	8	20	47	6	71/118

+ Excludes those responding "none".

Table 41 Application of Sanctions

Sanction	No. of Societies	No. of Applications	Range
Expulsion from the society	10 (13.2)	25 (10.0)	1-6 (mean = 2.5)
Formal censure	7 (9.2)	32 (12.9)	1-13 (mean = 4.6)
Impeachment of a society officer for abuse of authority	0	0	
Informal reprimand	11 (14.5)	162 (65.1)	1-130 (mean = 14.7)
Pecuniary fine	0	0	
Recommendation for revocation of license	0	0	
Other	7 (9.2)	30 (12.1)	1-20 (mean = 43)
None	41 (53.9)		
Total	76+ (100)	249 (100.1)	

+ More than one response per society was possible.

Table 42 reports the application of sanctions by the type of society. Societies from the "medicine and health sciences" report more than three times as many applications as any other types of societies. When the latter category is combined with the "social and behavioral sciences" and "engineering and technology," the three types of societies account for 239 (96%) of the applications. Those same societies accounted for approximately 73% of the reported complaints (Table 24). The largest discrepancy between the number of complaints reported (195) and the number of applied sanctions (3) occurred among the "physical sciences mathematics" societies. The data do not reveal the reasons for the discrepancy.

#24. How many times have the support actions been used?

Table 43 presents a breakdown of the responses; 99 societies did not reply. Twelve societies are responsible for the 70 applications. Thirty-four different societies had reported the availability of support actions; thus, only about 33% have actually employed them since 1970. Mediation and counseling account for the greatest usage.

The application of support actions by type of society is presented in Table 44. The societies from the "engineering and technology" and "social and behavioral sciences" categories account for 47 (67%) of the applications. As in the case of sanctions, when the latter two types of societies are joined by those from the "medicine and health sciences", they combine for the overwhelmingly largest share of applications: 59 (84%).

#25. Are society members informed about the implementation of sanctions or support actions?

Thirty-two responded "yes", 33 replied "no", and four reported that they had "no policy" on the matter (Table 45). The same question also asked, "If so, how? Are reports published with identifying names?" Twenty-four societies responded to one or both of these questions. One responded that the names of the parties involved are not published, but are "available though official organization records." On society noted that "for expulsion only, members receive a confidential memo giving expelled member's name and principles violated..." Generally, individual members are not identified, but the opposite is true in the case of "guilty" organizations.

#26a. Does your society offer education or information about professional ethics to your membership?

Table 46 presents the responses. While 40 societies reported that education or information related to professional ethics is offered to members, 66 indicated that no such effort is made. When examined according to type of society (Table 47), the "medicine and health sciences" lead in the number of societies offering such information to their members and also have the highest percentage (52%) of their total number included in the survey tabulations (Table 3).

#26b. If yes, how is this information provided?

The data reported in Table 48 show that printed materials are the vehicle most commonly used for communicating information on professional ethics to members. Special publications include the societies' ethical codes, leaflets, case studies and videotape presentations. Other sources of information include symposia at professional meetings, parts of annual refresher courses and section, branch or student chapter meetings.

Table 42 Application of Sanctions & Type of Society

Type	No. of Societies	No. of Applications
Biology & Agriculture	2	4 (1.6)
Education & Communications	1	3 (1.2)
Physical Sciences & Math	1	3 (1.2)
Engineering & Technology	3	49 (19.7)
Social & Behavioral Sciences	4	39 (15.7)
Medicine & Health Sciences	5	151 (60.6)
General	0	0
Total	16	249 (100)

Table 43 Application of Support Actions

Support Action	No. of Societies	No. of Applications	Range
Arbitration	1 (2.0)	1 (1.4)	
Counseling	6 (12.0)	25+ (35.7)	1-10(mean=4.2)
Financial Assistance	2 (4.0)	12 (17.2)	5-7 (mean=6.0)
Legal Assistance	1 (2.0)	5 (7.1)	
Mediation	5 (10.0)	27++(38.6)	1-12(mean=5.4)
Other	0	0	
None	35 (70.0)		
Total	50+++(100)	70 (100)	

\+ Plus one society responding "3-4 each year".
++ Plus one society responding "several".
+++ More than one response was possible.

Table 44 Application of Support Actions & Type of Society

Type	No. of Societies	No. of Applications
Biology & Agriculture	1	1 (1.4)
Education & Communications	1	2 (2.9)
Physical Sciences & Math	1	7 (10.0)
Engineering & Technology	3	26 (37.2)
Social & Behavioral Sciences	2	21 (30.0)
Medicine & Health Sciences	3	12 (17.1)
General	1	1 (1.4)
Total	12	70 (100)

Table 45	Information on Sanctions & Support Actions
Yes	32 (22.1)
No	33 (22.8)
No Policy	4 (2.8)
NR	76 (52.4)
Total	145+ (100.1)

+ One society responded "I don't know".

Table 46	Education/Information on Professional Ethics
Yes	40 (27.4)
No	66 (45.2)
NR	40 (27.4)
Total	146 (100)

Table 47	Education/Information & Type of Society
Type	No. of Societies with Programs
Biology & Agriculture	6 (15.0)
Education & Communications	1 (2.5)
Physical Sciences & Math	3 (7.5)
Engineering & Technology	8 (20.0)
Social & Behavioral Sciences	8 (20.0)
Medicine & Health Sciences	12 (30.0)
General	2 (5.0)
Total	40 (100)

Table 48	Communication of Education/Information Materials
Source	No. of Societies Reporting
Newsletter	25 (28.4)
Journal articles	22 (25.0)
Special Publications	22 (25.0)
Workshops	10 (11.4)
Other	9 (10.2)
Total	88+ (100)

+ More than one response per society was possible.

Budget Information (Question 27)

#27a. In the most recent fiscal year for which figures are available, approximately how much of your society's annual budget was for professional ethics matters?

#27b. What percentage of the total fiscal budget of your society does the amount given in 27a represent?

Twenty-three societies responded with a dollar amount or a percentage figure. For the 20 societies reporting an amount, the range was from $200 to $78,000, with five societies reporting that they spent $20,000 or more. As a percentage of the total budget, twenty-three societies reported that their allocation for professional ethics activities ranged from .01% to 8%. All amounts were for either the 1978, 1979 or 1980 fiscal years. Seventy-five societies reported that no society funds were allocated specifically for professional ethics; 41 societies did not respond and seven volunteered that the amount could not be determined.

Budget allocations according to society size, member employment and type of society are examined in Table 49-51 respectively. Size appears to have some impact on budget allocations. No society with membership of less than 10,000 reported allocations exceeding $1,000 while no society reporting budget allocations of $20,000 or more had membership below 50,000. With respect to member employment, those from the academic setting recorded the most number of societies with budget allocations for professional ethics; with one exception their allocations fell below $20,000. No clear pattern emerges from the data, however. The three types of societies that repeatedly reflect the most activity related to professional ethics ("engineering and technology," "social and behavioral sciences" and the "medicine and health sciences"), at least in terms of the survey data, account for 12 of the 20 societies reporting budget allocations (Table 51). They also combine to equal four of the five societies reporting allocations of $20,000 or more.

Membership Concerns (Question 28)

#28. Have your members expressed concerns about their professional rights and responsibilities? If so, what kinds of concerns have been expressed? (Please give specific examples.)

Only 37 societies reported that their members have expressed such concerns (Table 52), a figure made even more interesting by the fact that 44 societies have adopted ethical rules (Table 4). One might wonder from where the impetus came for an ethics code in seven of the 65 societies whose members apparently have expressed no concern over ethical issues. Table 53 matches the replies to member employment and those from academe recorded the largest number of responses; indeed, more than three times as large a response as any other employment category. Otherwise, the responses were fairly evenly distributed. In Table 54 the data are examined in relation to the type of society. All seven categories reported some expression of concern by their members, with the "social and behavioral sciences" recording the highest number. The number (7) of "biology and agriculture" societies indicating member concerns appears, at first glance, to be unusually high since that category as a whole has not reported a great deal of ethics activity. Yet, the figure may be explained by the point that six of the seven reported either having adopted a code or were seriously considering one.

Finally, a sample of the comments offered by the societies on the nature of their members' concerns appears below:

"Possible law suits brought by students as a result of grades or injuries incurred during field placements."

Table 49 Budget Allocations & Society Size

Size	$1000 or less	$2000-19,999	$20,000-59,999+	$60,000 plus	Total
170 - 999	2	0	0	0	2
1000 - 4999	2	0	0	0	2
5000 - 9999	4	0	0	0	4
10,000 - 49,999	2	4	0	0	6
50,000 - 99,999	0	1	1	2	4
100,000 plus	0	0	1	0	1
Total	10	5	2	2	19

+ One society in this category of budget allocation did not report size data.

Table 50 Budget Allocations According to Member Employment

Employment Plurality	$1000 or less	$2000-19,999+	$20,000-59,999	$60,000 plus	Total
Academic	4	2	0	1	7
Industry	0	3	2	0	5
Government	3	0	0	0	3
Self-Employment	2	0	1	0	3
Other	1	1	0	1	3
Total	10	6	3	2	21

+ Includes one society reporting equivalent figures for two employment categories.

Table 51 Budget Allocations & Type of Society

Type	$1000 or less	$2000-19,999	$20,000-59,999	$60,000 plus	Total
Biology & Agriculture	2	0	0	0	2
Education & Communications	1	0	0	0	1
Physical Sciences & Math	1	1	1	0	3
Engineering & Technology	0	2	1	1	4
Social & Behavioral Sciences	1	2	0	1	4
Medicine & Health Sciences	3	0	1	0	4
General	2	0	0	0	2
Total	10	5	3	2	20

Table 52	Membership Concerns
Yes	37 (25.3)
No	65 (44.5)
NR	44 (30.1)
Total	146 (99.9)

Table 53	Membership Concerns According to Member Employment
Employment Plurality	No. of Societies Reporting Member Concerns
Academic	18 (47.4)
Industry	5 (13.2)
Government	4 (10.5)
Self-Employment	2 (5.3)
Other	4 (10.5)
No Employment Data	5 (13.2)
Total	38+ (100.1)

+ Includes one society reporting equivalent figures for two employment categories.

Table 54	Membership Concerns & Type of Society
Type	No. of Societies Reporting Member Concerns
Biology & Agriculture	7 (18.9)
Education & Communications	3 (8.1)
Physical Sciences & Math	2 (5.4)
Engineering & Technology	4 (10.8)
Social & Behavioral Sciences	11 (29.7)
Medicine & Health Sciences	7 (18.9)
General	3 (8.1)
Total	37 (99.9)

"Inquiries as to the propriety of certain forms of advertising is the most common concern."

"Promotion and tenure decisions; evaluation of faculty and deans."

"Most frequent inquiry -- plagiarism; funding of academic programs by foreign states and relationship of intelligence agencies to academic institutions and faculty members."

"Field work ethics, e.g., confidentiality, remuneration, etc."

"None yet. They are busy and happy doing genetic research."

"Reporting of unsafe designs."

"Limits of professional advertising and media distribution of self-help procedures; rights of minors and others who...are unable to give voluntary informed consent."

"Relationship between unionization and academic freedom."

"Racial and sex discrimination; authorship rights and disputes over textbook selection."

"The society has tended to be extremely apolitical and there is little interest in guidance or sanctions with respect to professional ethics."

"Whistleblowing."

"Deception of subjects; protection of research animals; irresponsible allegations of fraud; possible conscious suppression of data that do not support a preferred hypothesis."

"Occasional conflicts experienced by members between the Code of Ethics and 'company' loyalty."

"Most concerns involve employer/employee relationships."

"Our members don't get exercised very much on ethical matters beyond an occasional allegation of 'objectional borrowing' of scholarly materials."

"Ownership of research data."

"Rarely; complaints concerning ethics matters by members of society insignificant."

Part III. Through the Maze of Data: In Search of Perspective

When we began our research no study of similar scope and magnitude had been undertaken. The project has clearly generated a great deal of new data on the professional ethics activities of science and engineering societies, but how does one go about sorting it all out? The data paints a picture of what the societies are doing, but what can be said about the quality of the picture? Given the exploratory nature of this study -- indeed, the serious study of professional ethics in general is a relatively young phenomenon -- and the limitations imposed by the size and nature of our survey sample we remain cautious in our interpretation. But evolving out of our efforts are some preliminary observations that show promise for guiding future study and interpretation of the ethics activities of professional societies. We present these now, with the hope that they will be investigated further and improved upon as research into this area progresses.

Ethical Rules

Earlier in the report, we presented the survey's finding regarding the adoption of ethical rules, their content, and the frequency with which they were cited in our sample of responses (see pp.26-29). The data do not, however, tell the full story. We can make no firm judgments about how the ethical rules are interpreted by the membership or by non-members. Nor can we say anything about the evolutionary forces at work that led to the adoption of certain rules and not to others. The data indicate that about one-third of the societies have procedures for reviewing and modifying their ethical rules, but this does not reveal how responsive or accessible those procedures are to the membership or to non-members.

We learn virtually nothing from the data regarding the impact of the rules on member behavior. We cannot even claim that the absence of a set of ethical rules is a sign of indifference on the part of the societies. A society may consciously choose not to adopt ethical rules for a variety of reasons, but it may still address pressing ethical issues through other activities, such as the sponsorship of open forums or the publication of items in its journal or newsletter. The fact that some societies which had adopted no formal rules also reported receiving and investigating complaints relating to professional ethics suggests that the decision to adopt or not to adopt formal rules and the consequences of that decision for the way society responds to ethical issues is a much more complicated process that it at first appears to be.

Clearly, we need much more detailed study of the relationship between ethical rules and a professional society's willingness and capability to deal with matters of professional ethics. In that regard we offer some criteria for assessing that relationship and, ultimately, the value of ethical rules as a guide for professional behavior.

1. Applicability -- This refers to the responsiveness of the rules to specific problems. What is elegant in theory can sometimes be elusive in practice. How effectively can the rules be applied to real-world problems. Are some ethical problems not likely to be resolved by an approach based on rules?

2. Clarity -- Are the rules sufficiently clear to provide a basis for the responsible exercise of professional authority? Ambiguity is likely to breed confusion and frustration and, as a consequence, may invite neglect. Moreover, clarity is especially important in those cases where the rules are expected to play a role in the adjudication of grievances.

3. Consistency -- Are the rules internally consistent? Are there logical contradictions within or between rules?

4. Ordering -- Does the statement of ethical rules provide a means for setting priorities between two or more rules which, although not *prima facie* inconsistent, when applied in practice will require the professional to choose between conflicting obligations?

5. Coverage -- This refers to the scope of actions and situations addressed by the rules. Are the rules silent on matters of serious ethical concern? Do they overemphasize matters of convenience, etiquette or expediency at the expense of more pressing issues?

6. Acceptability -- Do the rules express proper ideals? Should they be accepted as ethically prescriptive?

Since ethical rules do not evolve in a vacuum, the application of these criteria should occur in conjunction with an examination of the subjective interpretations and practical circumstances of those to whom they are intended

to appeal. There are also other considerations external to the rules that must be included in any comprehensive strategy of evaluation. Assessing their value ultimately must take into account the function (e.g., regulatory, ideological) that the rules are intended to perform, their actual impact on behavior and the system of supports and sanctions which accompany them. We have made no attempt to conduct such a comprehensive evaluation for it would require empirical investigation that extends far beyond the purposes and resources of this study. At this time we merely propose it as a fruitful strategy for examining the intricate role played by ethical rules in the conduct of a professional society's activities.

Implementing Professional Ethics

In addition to their consideration of and action taken related to ethical rules, the scientific and engineering societies are pursuing a wide range of activities related to professional ethics. Given the diversity of our survey respondents in terms of their size, the nature of their members' work and the settings in which their members perform their professional activities, such variety was expected. This diversity raises serious difficulties in any attempt to assess the efforts undertaken by the societies.

One can easily become lost in the sea of data produced by the survey without some organizational framework that brings order to what may appear initially as an assemblage of unrelated bits and pieces. The framework that emerges from our study is pictured in figure 1. At the far left of the continuum professional ethics issues become part of the society's formal agenda. A formal statement of ethical rules may or may not then be adopted. Regardless, however, clarification and guidance about professional ethics may proceed. Monitoring may occur informally or formally and may involve colleagues and/or non-members. Complaints may result, again from members and/or non-members, and decisions about how to respond to the complaints will soon follow. An investigation may lead to a hearing, a subsequent judgment as to whether and what kind of society sanction or support is warranted, and the implementation of whatever decision is reached. As one moves from left to right along the continuum, the costs to the society of establishing and implementing various types of activities will increase, in terms of staff and member time as well as financial resources.

Clearly, not every society included in the survey proceeds in that sequence. Some are more structured than others, while in others professional ethics issues never become an agenda item. But the framework does seem to capture, at least in broad terms, the full range of activities identified by the project survey. What, then, can be said about the societies' efforts to implement these activities?

Commitment of Resources: Very few of the responding societies reported designating funds specifically for professional ethics activities. Indeed, 75 societies do not allocate any funds for professional ethics. But our assessment of these responses is tempered by the possibility that such funding is more widespread than the survey indicates, and is tied in with other activities that the respondents did not readily identify with professional ethics. This latter impression is reinforced by the fact that a substantial number of societies borrow staff from other duties as/the need arises. Presumably, the costs of these efforts do not appear in a separate budget category entitled "professional ethics." But even if such "hidden" expenditures are taken into account, the level of budget allocations for ethics matters constitutes a very small portion of the budgets of our sample of scientific and engineering societies.

The relatively small allocations are reflected in the commitment of staff or member time to professional ethics matters. There are few societies with staff who would consider such matters a (if not the) prime responsibility. We question whether "borrowed" staff can acquire the skills and sensitivity

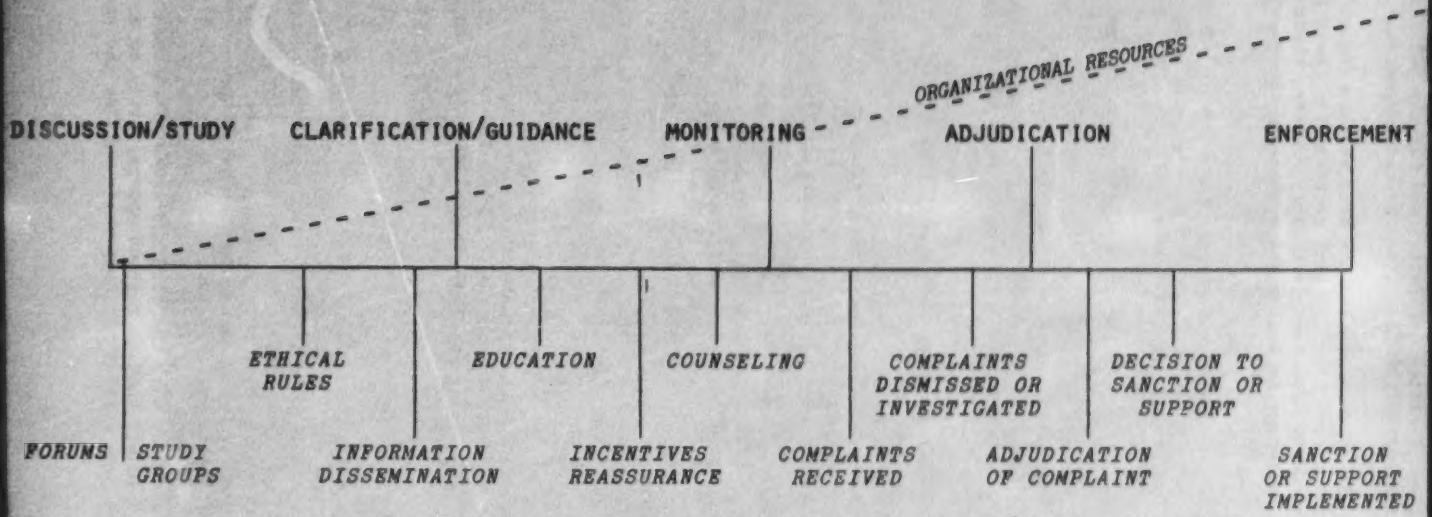

Figure 1. Range of Professional Ethics Activities

required for the investigation of ethics complaints and for the mediation of disputes, two areas of responsibility identified by the respondents.

Complaint Procedures: It is unclear from the data whether the societies generally perceive their role as one of a "public" guardian for their professions. Where complaint procedures have been developed, however, there has been little attempt by the societies to inform non-members of their existence. While we cannot directly attribute the relatively few complaints filed by non-members against members as reported by our respondents to this lack of public communication (see p. 31), we question whether the presence of complaint procedures can be considered an effective element of self-regulation unless persons outside the profession are made aware of them.

There is little further that we can say about the numbers of complaints reported by the societies. The data are tainted by the lack of any common definition among the societies (or at least among those completing the questionnaire) as to what constitutes a "complaint." In some cases, any inquiry regarding a member's conduct is considered a complaint, while in other instances a complaint form has to be completed and notarized. Consequently, comparisons across societies (Table 24) are tentative at best.

Sanctions and Supports: Without appropriate support structures to encourage and reward proper behavior and meaningful penalties to impose on those who violate ethical rules, the societies are not likely to inspire much confidence in their commitment to their announced ethical rules either among their members or non-members. As the responses to questions 19 through 25 illustrate, with few exceptions the societies have accomplished very little in the development of sanction or support procedures. The number reporting the availability of sanctions is less than half of our respondents; for supports, the number is about one-fourth. But these efforts appear almost admirable when compared to the numbers reporting having actually used them since 1970.

There has also been very little activity on the part of the societies to inform members about the support that they can expect from the society if they feel threatened in the exercise of their professional responsibility, and about the success or failures of previous efforts in support of members. Neither is there much effort to remind members that they can be disciplined for unprofessional conduct. The statements of ethical rules themsleves are, with very few exceptions, conspicuously silent on such matters (see p. 27). And in response to question 25, 33 societies replied that members are not informed about the application of sanctions or support actions (see p. 44). However, it is quite possible that these societies exercise informal control mechanisms that might not have been captured by our survey.

In Conclusion

One of the most striking features of the survey responses was the rather substantial number of no responses (NR) recorded. Several respondents, in fact, volunteered how difficult it was for them to provide data on some of their activities, revealing an acute absence of information about or formal records for many of the matters covered in this survey. Incomplete or unavailable data not only impedes research, but also hampers the efforts of the societies to determine the effectiveness of their activities and to identify strategies for improvement. It would appear that the development of data collection and analysis procedures consistent with the size and scope of the societies' activities in general would enable them to respond appropriately to members' needs and to inquiries from both critics and supporters outside the profession.

4

The Workshop on Professional Ethics

The AAAS Workshop on Professional Ethics was held on November 15-16, 1979, at the Dulles Marriott Hotel in Washington, D. C. Participants included over eighty individuals representing the professional societies, academic and private research institutions, government, public interest groups, and the press. Details below describe the workshop objectives, organization, and major issues highlighted by the participants. The list of workshop participants and the agenda are included in Appendix K. Appendix L includes selected papers (marked with an *).

Workshop Objectives

The Workshop on Professional Ethics was designed as a forum for the exchange of information and opinions among professionals from diverse fields about the role of professional societies in addressing ethical issues associated with science and technology. The workshop objectives included:

(1) reviewing and assessing data generated by the survey;

(2) identifying professional ethics activities not reported by survey respondents;

(3) reporting areas of concern which demonstrate unresolved ethical conflicts in the professions or inadequate, underutilized professional society resources;

(4) facilitating the development of criteria to evaluate professional society ethical principles, rules of conduct, and other activities;

(5) suggesting appropriate society roles in the promotion of ethical conduct;

(6) evaluating alternative strategies for the development of professional ethics activities by societies; and

(7) improving the subjective and objective data base available for future studies of professional ethics and professional societies.

Workshop Organization

The primary steps in organizing the workshop were the selection of participants, development and review of the agenda, preparation of agenda material, and organization of the plenary and discussion groups.

Participant Selection

Participants were selected on the basis of their interest in professional ethics. Efforts were also made in the selection process to maintain a balance

of disciplines and professional backgrounds, and to represent diverse organizational affiliations. Participants were invited primarily from the professional associations affiliated with AAAS, as well as other professional groups. Invitees also included persons representing other public and private groups; research scholars; journalists; and individual scientists and engineers who had raised issues of ethical concern within their own societies.

Agenda Development and Review

The workshop agenda was developed to stimulate discussion on topics relevant to the workshop goals and to provide opportunities for small group discussion. Topics were chosen that were specific to certain fields or that cut across many fields.

The workshop agenda and participant list were developed in consultation with the Professional Society Ethics Group, an informal advisory group of staff representatives from approximately a dozen AAAS affiliates. This group constituted a multi-disciplinary group experienced in addressing ethical concerns within their own professions. (See Appendix M.)

The workshop speakers were selected to represent and balance diverse viewpoints and to maximize the breadth of issues presented to workshop participants. The speakers discussed the survey findings, changing attitudes toward professional rights and obligations, ethical issues in the professions, and ethical issues in the development and use of scientific and technical knowledge.

Preliminary Workshop Material

To facilitate informed discussion and to offer a common resource guide for workshop participants, the project staff compiled an agenda book of workshop material which was distributed in advance of the meeting.[1] The agenda book was designed as a preliminary project document and included the preliminary agenda and participant list, a brief discussion paper which reviewed topics central to the workshop, an executive summary of preliminary survey results, available abstracts of speaker presentations, guidelines for discussion groups, a brief bibliography, and several excerpts from selected readings. Because of the preliminary nature of the agenda book, only a small number of copies were printed. Virtually all of the available agenda books have been distributed to workshop participants and other interested individuals.

Organization of the Plenary and Discussion Groups

As mentioned previously, the workshop was organized around plenary sessions and small group sessions.

The small discussion groups, comprised of 10-12 people, were conducted in three sessions. Discussion groups were constructed to represent a variety of professional disciplines including: engineering, physical and mathematical sciences, social and behavioral sciences, and biomedical and environmental sciences. A discussion leader and a reporter were designated for each group. In addition, the groups were provided with discussion guidelines focusing on current professional society concerns, areas of emerging concern, issues related to codes of ethics, and rules or procedures.

Workshop Discussion Topics

The topics of the workshop discussions can be categorized into five general areas: issues of emerging concern to societies, current society

activities, obstacles to professional ethics activities, and future research options. These discussions are summarized below.

Issues of Emerging Concern

Workshop participants cited many concerns which may become central to professional ethics activities in the future. One of the more prominent issues focused on the increasing importance of defining the legal status of the codes of ethics adopted by professional societies. Commenting on survey results, speaker Milton Lunch (National Society of Professional Engineers) noted that:

> It would be appropriate and helpful to both the legal and the engineering/scientist community to exchange views and get input, one from the other, recognizing that you really cannot draw a very sharp line between legal principles and engineering/science ethics.

For example, workshop speaker Warren Niederhauser*(Rohm and Haas Co., and a Director of the American Chemical Society) analyzed the role of professional societies in employer-employee relations and disputes. Although most societies have not clarified their positions on employer-employee relations, some societies, including the American Chemical Society and several engineering societies, have developed model contracts or employment guidelines to provide members with advice and support in resolving conflicts with their employers. Workshop participants noted the difficulty of defining the professional's dual and sometimes conflicting responsibilities to the public and to employers. Additionally, professional societies which outline the employer-employee relationship (e.g., in model contracts) may be unwilling to go so far as to represent a "union of professionals" without legal standing. As a result, in cases of apparent violations of model contracts or guidelines, the professional society confronts a difficult enforcement problem. Employers may have little incentive to settle a dispute with the professional society, which often lacks the motivation, evidence, or resources to pursue more severe options such as publicizing the violation and naming the offending employer, or taking legal action. Yet, in many cases, employers have cooperated voluntarily to preserve their reputation within the profession.

Workshop participants expressed concern over the lack of clarification between the respective obligations of professional societies and government monitoring organizations such as state licensing boards. Mr. Lunch briefly reviewed this issue:

> Of course, not all the professions represented at this meeting, and not all the professions generally, are under the state licensing law procedure. But many are; and there has been a discussion for a number of years with considerable disagreement over whether state licensing law should lay down what amounts to ethical principles on a legal basis. I think in the engineering profession the concept is fairly well accepted that a proper duty and function of state licensing boards is to establish rules of practice which mandate certain conduct, forbid certain conduct, and suspend or revoke the license of violators.

The participants noted that professional societies which draft and enforce codes of ethics can encounter numerous and often unanticipated legal conflicts arising from code provisions which advocate conduct that might be in violation of existing laws or which promote conduct that a strict reading of the law would not require. Professional societies and their members need

guidance to help identify--and, where appropriate, to avoid--code provisions which may conflict with the law. The need for such guidance was illustrated by some participants in describing recent conflicts over the professional societies' role in employer-employee relations and over the impact of code provisions on competition. Speaker Elizabeth Rindskopf (Federal Trade Commission) cited several examples of FTC concern over professional society code provisions which might restrain competition--most notably the American Medical Association ban on advertising.

Another emerging concern, the role of the professional society in public interest science, overlaps to some extent with uncertainty over society code-law relationships, but also demonstrates the knotty value judgments which professional societies must consider when developing ethics procedures. Speakers Dorothy Nelkin* (Cornell University) and Jeremy Stone (Federation of American Scientists) addressed the emergence of public interest science and the need for professional societies to consider the collective social responsibilities, obligations, and potential conflicts in their professions which arise from scientists and engineers participating directly or indirectly in the policy-making process. Nelkin reviewed the evolution of public interest science, noting the current activist stage:

> (The) responsibility of experts to alert the public is not a new concept. By the late 1960s scientists had entered a more active phase, begun after World War II by activist physicists with concerns over military policy...Before, public service was defined as contributing scientific knowledge; now, serving on advisory committees has proliferated, and since the late 1960s scientists have been challenging public policy in wide areas.

This active concern about public interest science appeared in other speaker and participant comments. For example, speaker Robert Baum (Rensselaer Polytechnic Institute) declared that from his perspective "all science is public interest science," and Stone called for:

> All scientists--or more anyway--to engage in the marketplace of ideas, allowing good science to drive bad science out, in general, in time...Problems such as resource depletion and cancerous chemicals indicate that it is not possible or defensible for scientists to play as little a role in policy-making as they do. More scientists should jump into public interest science and be less concerned about those who do. Society cannot wait for the traditional scientific bottom line, because problems are too big and solutions are too crazy. The link between science and government must be improved to improve the interpretation of results.

But most participants agreed that the new role of professions in the policy-making process is complex and not easily defined. As a result, the role of professional societies in promoting responsible public interest science is especially difficult to assess, particularly given the proliferation of public interest groups and policy action committees. As Nelkin suggested:

> Tactically, the most striking feature of the scientific activism is its public nature, the use of political forums. This creates a number of difficulties, such as: conflicts over the value of public activities by scientists in specific controversial areas, with possible sanctions against active scientists; possible destruction of the image of professional automony; and the potential for

> an adverse environment which possibly might destroy the professional approach, e.g., by issuing preliminary results, further research may be affected and uncertain results may be promulgated.

Jeremy Stone explained that:

> I doubt that professional societies can monitor and maintain standards...Codes often degenerate in self-serving documents which cannot deal with complex real problems....Societies should censure those who do not contribute information or time at all...Societies aren't doing the job, and codes are deflecting--even if they're good, stopping at codes is insufficient....Professional societies shouldn't harrass or further complicate the role of public interest scientists--rather, the societies should improve the role, hold scientists to higher standards, and enlarge the number of scientists participating.

Some participants suggested that the professions have a collective responsibility to ensure public access to their professional resources. For example, Robert Baum discussed the need to provide support for public interest groups which cannot afford the cost of technical advice:

> Several European countries have programs for providing scientific and technical expertise to public interest groups. This is something that is essentially unavailable in this country today....There is a very small program in the Science for Citizens program (supported by the National Science Foundation) where a few science fellows are being supported if they wish to work for public groups. But there is nothing that any of the scientific societies have done comparable to the legal profession in terms of lobbying and encouraging members on an individual basis to provide services to public interest groups and to lobby for the establishment of governmental programs...I've talked to a number of lawyers at the legal services corporations (which provide legal expertise to public interest groups and lower income groups) and the lawyers are totally stymied in a lot of cases...They've got the legal resources, but they can't get any technical expertise because the scientific community comes at a very high cost, a very high price, and services of the scientific community are available only to those sectors of the society that have the money to pay for them today.

Others noted that some societies have taken positive steps to encourage and increase the visibility of public interest science by creating awards for outstanding public interest scientists (e.g., The American Physical Society and the Institute of Electrical and Electronic Engineers).

Workshop participants warned that the time and cost of such activities--particularly "pro bono" or public services--can be prohibitive to small companies or professionals in individual practice. But several experimental programs were cited which could facilitate pro bono work--the examples cited by Baum (above) are illustrative. Charles Weiner (MIT) cited additional small-scale projects:

> There is in the Washington, D.C. area (and one budding in the Boston area) a public scholars research bank which has as its aim to use university faculty as ways of reaching students who would love to do interesting research in the communities in which they live and to relate the needs of community organizations who often are embattled with industry or government to some local entity a little stronger than they are.

Professional Society Ethics Activities

Although workshop participants acknowledged the professional societies' recent advances in ethics-related activities, they also noted the generally scattered and random nature of the societies' commitments to professional ethics. Speaker Mark S. Frankel (Illinois Institute of Technology), reported preliminary survey data *which described the existing activities in the societies:

> 64 societies (representing 74 percent of the membership of societies responding to the survey) reported that they had adopted or subscribed to ethical codes or guidelines. A smaller number cited standing committees concerned with ethics (57 societies), staff offices on ethics (24 societies), full-time staff officers (7 societies), or special funding for ethics activities (22 societies).

Speaker Bernard Barber (Columbia University) commented on both the impact of the survey findings and the relative progress of professional societies in addressing ethics issues:

> The survey data on the procedures versus the codes shows very clearly how meagerly developed is that whole area of professional ethical activities. Little staff, little procedure--and it seems unlikely that this situation can result in a very effective action...(On the other hand) I think in this whole area, you can say that the glass is half empty, or you can say that it is half full. I for one with all my feelings that there should be continuing self-criticism, and outside criticism, feel that in the last 10 or 15 years there has really been a remarkable progress in this country in this whole area of professional self-regulation.

Many workshop participants indicated that the public increasingly will expect professional groups to monitor and respond to errors in professional judgment and abuses of professional rights and obligations. The tradition of uncritical public confidence in professional services is eroding rapidly.

As Mark Frankel and others suggested, the mere existence of a code of ethics does not necessarily indicate a genuine commitment by the societies to promote attention to ethical concerns in the professions. Nonetheless, codes of ethics are often the first, formal step taken by professional societies to address ethical concerns. Workshop participants explored numerous aspects of professional codes of ethics, including: function, content; relation to members and enforcement. The discussion on each topic is summarized below.

*Note: The survey data described in this chapter is taken from the preliminary report distributed to the workshop participants.

Function. Speakers John Ladd* (Brown University) and Milton Lunch, as well as other participants, emphasized the diversity of functions which codes of ethics may serve, intentionally or unintentionally. John Ladd noted a variety of code functions:

> Objectives of codes of ethics include:
> 1. inspiration;
> 2. alert professions to moral aspects of their work;
> 3. act as a disciplinary or penal code;
> 4. offer advice in cases of moral perplexity;
>
> and more secondarily:
> 5. enhance the profession's image;
> 6. protect the profession's monopoly status, an historical justification for codes;
> 7. clarify expectations of society and clients;
> 8. establish an occupational group as a profession;
>
> and a possible mischievous side-effect:
> 9. encourage self-complacency in the profession because of the existence of the code.

Ladd suggested, however, that codes inherently are limited in their ability to ensure ethical practices:

> Imposing principles on others contradicts the nature of ethics itself, i.e., that people are individuals and ethics is essentially self-directed, not other-directed. To effect ethical practices through rules, laws, etc. demonstrates confusion of thinking.

Speaker Steven Unger* (Columbia University) affirmed that codes can help "justify but not compel action". Throughout the discussion, workshop participants considered a variety of code functions:

(1) Educating members. Codes of ethics can, within limits, help sensitize members to ethical constraints on professional conduct. As Dr. Unger declared:

> ethics codes are valuable to educate (in substance, in development, and in training new professionals) and to bolster the person who tends to be ethical in situations fraught with counter-pressures. Ethics codes are meaningless without support (via professional societies and legislation).

(2) Defining professional responsibility. The workshop discussed the role of codes in preserving the standards of professional integrity upheld by the societies, particularly in self-regulating professions. The need for objective evaluation of professional privileges and obligations--to ensure that self-regulation does not lead to self-serving standards-- was emphasized.

(3) Promoting ideals. Codes of ethics can foster ideal models of professional behavior by identifying and sancetioning unacceptable activities or encouraging ideal behavior directly, as Joan Cassell (Center for Policy Research) suggested:

> William May at Indiana University has discussed professional codes in terms of the two-tier ethics: one being the prohibition, the "thou shalt not" that must keep professions from doing some of the most grievous wrongs; but the other was from the ancient church

> called "Councils of Perfection" which should be inspirational—things that a professional should strive toward. Perhaps codes need both of these, a floor, plus an aspiration.

Several speakers and participants cautioned that codes only can encourage appropriate behavior, but not mandate it. Don Wilson (Michael Baker Jr., Inc.) explained:

> We talk about the positive and negative aspects of moral conduct but we always end up in talking about enforcement and punishment and forcing people to do things. It seems to me that we've got to recognize that a major area is the encouragement of professionals to improve their relationship with clients and with their associates. That is the function of a society—to lead the way and encourage good conduct.

Speaker Judith Swazey (Medicine in the Public Interest) noted that adequate promotion of ideals should go beyond just a code of ethics:

> There is a role that professional societies ought to be taking in the training and early work experience of young professionals that would change some of their values and habits. I think that goes way beyond socializing or sensitizing. It clearly is something that a code in and of itself can't do.

Many participants observed that there are many areas of significant disagreement in the professions as to what constitutes appropriate behavior. In such cases, codes only can provide general guidance at best.

(4) Defining professional etiquette. Several participants criticized the current codes of ethics for their emphasis on issues which are essentially matters of professional relations or etiquette. Speaker Bernard Barber pointed out that:

> The survey data on the amounts and kinds of attention to the different issues in the existing professional codes confirms the assertion made by Jeffrey Berlant in his book, Profession and Monopoly, that the existing professional codes pay much more attention to the relations that are inter-kept among the professionals themselves than they do to the safeguarding of the interests of their patients and clients.

Speakers Edmund Pellegrino (Catholic University) and Judith Swazey agreed, citing the example of the medical code of ethics. Swazey declared:

> I'd like to underscore the point Dr. Barber made that we need to distinguish very carefully between what I would call ethical codes, normative ethical statements of what we ought to do morally in a given situation, what courses of action we ought morally to follow, and statements of etiquette, particularly as pertains to relations between professionals. If we look at codes of ethics in the AAAS survey and if you study the history of ethical codes, particularly in the medical profession (with which I am most familiar), they often have more to do with etiquette than with what could properly be defined as normative ethics.

(5) Safeguarding the interests of affected groups. The workshop considered the need to safeguard both the general public interest and the rights of clients or patients. Speaker Robert Baum described his recent experience in drafting an ethics code for all engineers and expressed an overriding concern:

> The key to a code (for all engineers) is that it be anti-paternalistic. The fundamental controlling concept must be informed consent by those affected by the work of the scientific community. We must recognize the right of the public to have information and assess acceptable and unacceptable risks. This right is a responsibility to the people directly at risk.

Speaker Judith Swazey provided a similar perspective:

> I think historically and sociologically the characteristics of professionals make the general failure to exercise adequate self-control procedures understandable, but this doesn't mean that we need to throw up our hands and say it simply won't be done. Professionals, as Bernard Barber said, are noted, perhaps above all else, for their autonomy. This I think means that they tend to place a great deal of value on the exercise of individual self-control. You and I as professionals control our own behavior: that is part of our autonomy. But, at the same time the professions have not put much emphasis on corporate responsibility; on the obligations of a profession as a body of people to self-regulate its members.
>
> Professions tend to operate as fairly narrow self-interest groups when push comes to shove, that in the end are more apt to want to protect the guild than to protect the public interest, if there is a conflict. They have to order their ethical concerns in that area.

Swazey also examined the difficulty of defining an appropriate professional-client relationship, citing the problems encountered by the American Medical Association.

> The AMA's first set of principles were adopted in 1847 and they now have a new set after various revisions of seven proposed principles that are being considered by the AMA's House of Delegates. If you look at the code, particularly in 1847 but I think also equally true today, you don't find a primacy of concern for the patient or the client. There are general statements about duties to patients and duties to society or the public but what I, at least, and others, find in the AMA code is the image of the physician as a benevolent expert who gratuitously gives of his time and skill to his patient. There is no sense of reciprocity, very little sense that physicians receive from as well as give to the public and their patients.

Participant Kurt Baier (National Humanities Center) commented on the trend away from self-employed professionals:

> Professions are now organized, largely as businesses, where the paragon I suppose is the medical profession In the old days everyone was his own employer. Entirely

> new considerations of the business kind are now coming into the act.

Yet, several participants and survey results appeared to confirm the tendency for current professional codes to be very self-serving.

Content. The workshop discussed the content of codes, a more specific issue related to function. Participants appeared to agree that a determination of appropriate goals and functions of a code or statement of general principles should precede the development of specific content.

Survey results confirmed the general feeling of workshop participants that professional societies, as a group, show a marked preference for dealing with ethics issues on a very general and abstract level. Formal statements of the objectives or principles which form the foundation for the codes are rare. However, some participants defended the tendency toward abstract statements.

As speaker Steven Unger noted, citing the example of the engineering profession:

> The code of ethics itself, for the same reason that I described with respect to regulations, cannot be so detailed as to tell engineers what to do in every situation. When you try to do that, you're bound to leave enormous holes and by their very absence, they would become loopholes through which people would go. You have to tread a line between the one-statement code of ethics--always do the right thing--and trying to detail exactly what to do in every complex situation.

Judith Swazey agreed:

> The normative statements that appear in most codes tend to be vague. I am not sure that this is an important way to state them. I think the engineering code, as Mr. Lunch has described it, is fairly unique in its degree of specificity. By and large people who draw up codes within the profession try to come up with general guiding principles.

The difficulty of accommodating broad memberships with diverse interests and professional responsibilities also argues for some degree of generality, as speaker Robert Baum noted with reference to efforts by the AAAS Committee on Scientific Freedom and Responsibility to draft a universal code of ethics for scientists and engineers. But the fact that the societies lack common definitions of basic concepts (e.g., what constitutes a "violation" or "the public interest") compounds the difficulty of understanding and evaluating various codes of ethics.

Many speakers and participants agreed that the content of codes must be regularly reevaluated by the societies to ascertain their continued validity, timeliness, and relevance for a changing membership. Louis Cimino (American Anthropological Association) reported that the employment profile of the AAA membership had changed substantially in recent years, requiring a reworking of the code of ethics. One of the workshop discussion groups concluded that studying specific cases of membership concerns would suggest necessary modifications to codes of ethics.

Speakers emphasized the need for a conceptual framework within which to construct an appropriate code. Mark Frankel provided one example, which was a classification scheme derived from the principles and rules reported in the

survey data (see Chapter Three). Speakers also stressed the need to consider several central issues before constructing a code, such as characteristics and resources of the society, and the type of member employment profile. The different ethical concerns of professionals were linked to employment patterns in private industry, research institutions, the federal government and academic institutions. Joan Seiber* (California State University) noted that the discipline involved may determine code content to a great extent as well.

Several participants emphasized the need to involve the public in the development and application of codes of ethics. Speaker Harold Orlans (National Academy of Public Administration) noted increasing public concern over professional ethics, prompted by factors such as public awareness about adverse impacts of science and technology, declining public confidence in professionals, the increased cost of professional services, and the demand that consumers of professional services be fully informed. One workshop discussion group cautioned that public involvement is difficult to coordinate effectively, but actively soliciting public comments through forums and meetings constitutes a first and appropriate step.

Relation to Members. Several speakers agreed that the responsibilities of a society member under its code of ethics must be made clear. In addition, the society should detail the professional's potential culpability under code enforcement procedures upon the member's admission to the society. Project Co-director Rosemary Chalk (AAAS) suggested that, as a minimum, members should have the opportunity to acknowledge familiarity with the code, and several participants proposed that members should be required to support and comply with the code as a condition of society membership.

Enforcement. The workshop participants addressed the difficulties of both enforcing codes of ethics and also supporting members who may encounter reprisals for code compliance by groups outside the profession. Participants noted that in a litigation-oriented society the emphasis on code enforcement often was reactive and punitive rather than positive and incentive-minded. The importance of formal complaint adjudication procedures was stressed by several speakers and participants. Dr. Frankel noted that the survey results suggested that:

> 43 societies had formal procedures for hearing complaints;
> 41 societies have received complaints; and 75 societies
> have received no complaints since 1970.

In many cases participants reinforced the picture painted by the data which indicated that complaint procedures are unavailable or are inadequately publicized or implemented.

Speaker Milton Lunch explained the value of formal procedures to the National Society of Professional Engineers:

> Reference was made to our experience with our Board of
> Ethical Review, and it has indeed, in my judgment, been
> a most enlightening experience over the period of some
> 20 years that we've operated this Board. It consists
> of members--experienced members--who take actual cases
> submitted to them based on actual facts in most situations, even though the members of the Board do not get
> the names of the people and the cases are written up
> and reported in a hypothetical way...And they debate and
> discuss, and I mean debate to a great length in some of
> these cases, to reach a conclusion or write a report
> which is published for information to all the members.
> This has been in my experience probably the most

> important educational aspect of what a society can do in developing and implementing ethical principles than any series of articles, forums or meetings can accomplish.

Speaker Judith Swazey observed that informal procedures for resolving complaints can serve functions similar to formal complaint adjudication:

> The survey doesn't quite capture the differences between informal and formal social control mechanisms, exercised by professionals and their societies, as well as the differences between formal and informal social control mechanisms that can be levied by outside bodies. There are different ranges of social control mechanisms and I suspect that a lot of professional organizations use informal control mechanisms much more frequently, and when we look at them in an analytical study they're not as visible, and we say, there are no social control mechanisms--but they're harder to find.

Several participants discussed the difficulty of providing due process in complaint adjudication, focusing on the necessary but large expenditures of time and resources required to investigate fully specific cases. There was no clear consensus within the group that this was a burden the societies were willing to assume.

The topics of sanctions for code violators and support for code "upholders" are closely related. Survey results and workshop participants highlighted both the significance of sanctions and support and the difficulty of successfully operating an active program of sanctions and support. Dr. Frankel's preliminary report noted:

> Survey data indicated that 63 societies had some form of available sanctions against members violating ethical guidelines--but less than half of them have imposed sanctions since 1970.

This performance may be caused by factors noted above, such as the lack of significant staff support for complaint investigations and the cost of according due process to the subjects of an investigation. Some societies, including the American Chemical Society, have attempted to mitigate the cost difficulties by using retired professionals as investigators. In general, the societies' representatives seem sensitive to the fact that extensive use of sanctions could be counterproductive, draining large amounts of resources and at the same time creating divisions within a society's membership. Consequently, they noted that societies prefer to encourage proper behavior rather than sanction inappropriate behavior--and when sanctions are applied, they often are not publicly reported, even to the membership.

However, encouraging proper behavior also creates demands on the professional society. Workshop participants emphasized the importance of support mechanisms for society members involved in conflicts over ethics. Yet, support mechanisms are clearly in a primitive stage of development in most societies. Counselling and referral services are rare, financial and legal assistance are even scarcer. Survey data revealed that although 39 societies reported available support mechanisms, less than half of them have used them since 1970. Thirty-three sociaties offer arbitration or counselling services (seven reported a total of 30 member applications); and 11 societies provide financial or legal assistance (three societies have provided services on 17 occasions).

Participants pointed out that the generally low operating budget of a society may clearly offset its ability to actively support its members in

code disputes (particularly in the more academic or honorary societies, according to one discussion group). Some societies may extend support through mechanisms such as submission of amicus curiae briefs in significant legal cases and investigation of a limited number of significant cases involving society members (culminating in the issuance of advisory opinions). Some participants felt that the societies might consider a system to help find employment for scientists who become unemployed because of a dispute in which they upheld rules embodied in the society's code of ethics.

Workshop participants noted that society members and the public must be notified of ethical guidelines and procedures, particularly in light of public concerns over the professions. But only 32 survey respondents inform members about the availability of sanction or support mechanisms, and 34 societies explicitly do not inform members. Furthermore, survey data reported that although 44 societies inform members about complaint procedures, only six seek to communicate with the general public. Several participants and discussion groups contended that prominent display of the code and prompt disclosure of sanctions would produce informed clients and enhance the professions' status. Of course, if the disclosure of sanctions includes specific name and details about the sanctioned professional, the requirements for full investigations and due process become compelling.

Obstacles to Professional Ethics Activities

Participants and speakers pointed out that a number of practical considerations limit the ability of societies to respond to ethical concerns. The primary obstacles, which influence societies in different ways, include internal and external factors. Each is discussed below.

Internal. The economics of societies' ethics activities was cited as a primary obstacle to society actions. As speaker Harold Orlans and survey data confirm, few staff are designated to develop code-related activities. And the potential cost to each professional of the society actively supporting the code can be imposing. In addition, a few societies are unwilling to aggressively uphold ethical issues related to their members' employment conditions because their members' dues are paid largely by employers. Operational constraints on professional ethics activities include the difficulty of formulating a code of ethics and the pluralistic characteristics of the membership. Developing a code of ethics requires consultations with experts, other societies, the membership, the public, various affected groups--the task is formidable and may expose deep-seated value conflicts both within the professional society and between the society and outside interest groups. In addition, as Dr. Frankel pointed out, the survey data reveal that there usually is no way to resolve conflicts or to establish priorities when two code provisions come into conflict. (A unique example of a conflict resolution procedure adopted by a British society is described in Appendix W). Indeed, the diversity of codes of ethics argues for evaluation criteria somewhat specific to each code, according to one participant. The characteristics of the membership of a society significantly influence the types and quality of ethics activities undertaken. As noted previously, diverse career goals and employment patterns constitute an obstacle to effective ethics projects. In his remarks to the workshop, Milton Lunch referred to a recent address by Judge David Bazelon to the National Academy of Engineering. Judge Bazelon commented:

> I do not believe that fear of reprisals causes the engineering profession's reticence. A more dominent problem is that loyalties to employers and other concerns can cause us to ignore broader public needs. The engineering profession's duty to the public is acknowledged in its ethical canons. But I do not believe that duty has been dealt with adequately. The Code of Engineering Ethics, approved by the Engineering Council for Professional Development in 1974 calls upon engineers to

> advance the profession by 'serving with fidelity the public, their employers, and clients.' However admirable a sentiment, this principle provides no structure to direct the engineer who notes a divergence between public and private interests. A number of engineering societies have adopted what looks to be a more instructive guidepost, as part of a statement on 'employment guidelines.' This statement directs the professional employee to withhold plans that do not meet accepted professional standards and to present clearly the consequences to be expected if that professional judgment is not followed.[2]

The membership of a society may not request attention to ethics concerns--in many disciplines few educational courses are taught which comprehensively address ethics issues. Consequently, there is no clear constituency to promote society ethics activities, and broad education of the membership is a complex and costly matter. Some participants noted that bureaucratic procedures and structures within the larger societies also can obstruct effective action in ethics matters.

External. Laws and public policies may influence the scope of societies' ethics activities. As noted earlier, laws and codes sometimes come into direct conflict, which represents a significant obstacle to societies' actions. Furthermore, the possibility of libel or other suits by individuals (members or clients) can have a chilling effect on active ethics activities. Specific public policies may affect a society's operations in selected fields. Across the board, regulation and anticompetition laws must be considered seriously by societies contemplating strong stands on ethics-related issues. Many professionals are concerned about intervention by the government in regulating professional activity. Milton Lunch cited the views of Professor Ernest Greenwood, professor emeritus at the University of California:

> I detect a strong trend in our society to strip the professions of their autonomous and self-regulatory features which are coming to be regarded as monopolistic and hence, contrary to the public welfare. The trend is to invest the regulatory power in the government on the grounds that professions can no more be trusted than can business to regulate themselves. The defect in this doctrine is, if carried to its ultimate, it would accelerate the development of an all-powerful state and weaken the system of voluntary associations, which is one of the chief strengths of a democratic society.[3]

Speaker Bernard Barber warned against viewing government regulation as a "we versus them" scenario, noting that government has a role, as do the societies:

> I think it is very important not to polarize, not to make a dichotomy, a rigid separation between self-regulation as is so often done. My own feeling is that no matter how effectively the professions regulate themselves, since there is a larger public interest, the government, in its statutes and regulatory bodies and in its law, is going to take some interest. I think the point is though, if we can come into the moral court and sometimes into the legal court with an effective defense, that we do these things well. Then we have a better case....

However, the inherent limitations of government regulators must be off-set by professional expertise, as speaker Steven Unger observed:

> Instead of thinking that it's the law and regulatory agencies that can do the more thorough job, I think it should be clear, at least in those fields that are dynamic in the sense of the state of the art keeps changing, that it is impossible for a regulatory agency to do more than a very rough kind of job in protecting the public interest. There is no way that you can set up a set of regulations that will tell you how to design a safe airplane, so that if you violated some law in the course of designing the airplane the public will be protected. It is only the engineer who is intimately involved in the design of that aircraft.... There is no possibility of a regulatory agency being able to set up rules or to monitor the progress of the design of the airplane because they would need a staff that is comparable to the design staff that's doing the job in the first place, and it is entirely unfeasible for us to do this. So while regulatory agencies and laws can play an important role in providing some ultimate sanction against those who are trying to grossly abuse the public interest this must be seen as a sort of backstop that the profession can appeal to in certain extreme cases. But the true protection of the public interest must reside with practitioners who are going to behave in an affable manner.

Kurt Baier suggested that the professional societies must guard against the tendency to exploit self-regulation for private gain:

> The kind of argument that I come across frequently is that the professions must regulate themselves, or else have government regulations. And the underlying idea is that as long as you regulate yourself you can get away with much more than when the government gets into the act. This is somehow, how can I put it, to abuse the aspiration; to demean the idea of a professional ethic is to make a kind of instrumental rules for the promotion of the self-interest of the group. But that isn't what ethics is about. It seems to me when we set up such rules we do more than the actual minimum that can be expected of anybody.

Speaker Bernard Barber agreed, declaring:

> The moral, however, (as I see it) is that we need less professional elitism and more creative, constructive initiatives on the part of the professionals if we really want to make a claim to a certain kind of moral stature. It seems to me we can't be just responsive, we can't just do it, when the government says you've got to do it. In short, I think we need more of what this workshop represents and a lot of other similar activities. In our American Sociological Association, we finally have set up something called the Committee on Regulation and Research and we are sending in what I consider to be a very responsible letter about the new regulations which NIH has set up. We are saying what we like about the changes that they have put in, and we're indicating some of the things

> that we find ambiguous and confusing and perhaps even harmful. It is I think a good response.

Anti-trust policies also limit the societies' ethics program. Speaker Elizabeth Rindskopf outlined the societies' obligations under FTC regulations:

> The professions are subject to anti-trust constraints, and the obligations of professional societies are similar to business responsibilities (although different, of course)....Since the late 1960s, many professions--architects, optometrists, engineers, pharmacists, doctors, lawyers, accountants, and dentists--have altered their procedures to allow free competition.

Speaker Milton Lunch pointed out the conflict between effective self-regulation and anti-trust enforcement policies.

> I was quite interested in the observation that we should do more in terms of self-regulation in the professions whereas at the very time the attack on the concept of professional ethics from the anti-trust authorities is against the idea of self-regulation. So that is going to be an interesting facet over the next several years as to how those conflicting principles are going to develop. If the professions should really move toward more self-regulation, meaning more self-discipline and more action against those who violate their ethical standards, what is going to be the reaction from the other side, from the governmental agencies and authorities who are opposed to the concept of self-regulation?

Law and public policy constraints on society activities may be stronger than intersociety and public opinion obstacles, but the latter do exert pressures which societies cannot ignore. Intersociety relations can influence a society's ethics activities--for example, the fact that a large number of societies have codes of ethics has influenced other societies to respond in a similar fashion. Consultation with societies which have constructed or revised codes can help societies with little code formulation experience to avoid pitfalls. In addition, one participant noted that societies should cooperate in circumstances where a professional may be subject to more than one (and possibly conflicting) codes. Intersociety discussions about ethical complaints and procedures can create confusion, however, in the absence of shared definitions or common understanding of various terms used in investigation, adjudication, or enforcement procedures. Public opinion, discussed previously, has shown signs of eroding confidence in professional self-regulation, and the societies' options may be limited by the public's perception of those activities. Participants noted that this is particularly true given the general complexity of the skills represented by the scientific and technical professions, the increasing press coverage of professional ethics issues, and the public's perception that it has an increasing stake in the regulation of professional activity.

Future Research Options

The workshop participants identified issues requiring further research and evaluation. The following issues appeared to be most significant:

(1) Workshop participants emphasized the utility of studying the history of existing codes of ethics and periodically reviewing their contents. The importance of understanding the historical context of the codes of ethics was discussed by speaker Judith Swazey:

> Codes are historical documents and are supposed to be categorically and universally binding on those who profess obedience to the code. I think that is one component of the meaning of the word "professional" which we generally tend to overlook. Codes are, however, historically bound documents in most senses. They tend to be conditioned by the events and the values of their time. We see this in the number of the AAAS-affiliated societies that have revised their codes over a period of time as new issues come up and as concerns change.

Participant Hedvah Shuchman (The Futures Group) agreed, noting:

> I would suggest that perhaps in further analysis on this issue that the driving forces which resulted in the development of the codes you're talking about are essential to an understanding of what the credits of the code are.

Concern for periodic review of codes will help clarify the diverse objectives which have shaped the codes. As speaker John Ladd suggested:

> The objectives of codes of ethics are all suspect, at a minimum. Established codes tend to represent tyranny of the majority/establishment. Established codes tend to discourage innovations and criticisms.

Workshop participants pointed out that such code review practices would facilitate analyses of the codes' internal consistency.

(2) One of the workshop discussion groups proposed that research should be undertaken to correlate the level of society ethics activities identified by the AAAS survey with basic social or economic characteristics of the societies (e.g., size, budget, history).

(3) Several speakers and participants recommended further research into the nature of compalints received by the societies and into professional society experiences with codes of ethics. Judith Swazey and other workshop participants noted that such research could help the development of common definitions. Speaker Bernard Barber emphasized that, within limits, empirical research could provide clues to the appropriate application of codes to specific situations:

> Although I think empirical research can often have useful functions, I don't want to suggest that in any way can empirical data always solve the problems. As a number of us have already pointed out, scientific controversies, ethical controversies, political controversies over science and professional activities--all are often conflicts over allocation of power, equity, justice, etc. Nonetheless, it seems to me that it is an absolute moral imperative for us as scientists and engineers to feel that the discussion of ethics should be carried on as far as possible in terms of what I sometimes call rational remedy, rather than in terms of what I call mere moral outrage.

(4) Several participants suggested that societies should conduct ongoing research into members' opinions about abstract and specific

ethical issues. Participant Paul Reynolds (University of Minnesota) explained:

> I presume that we have two million people in this subject population and we don't have any information on how any sample of this two million, aside from the 50 or 60 of us who are here, how they perceive these moral dilemmas and how the associations might help them resolve them...my suggestion is that some systematic attempt be made to ask the individual members what they think are moral problems, and how they go about resolving them, and under what circumstances they look to their professional groups, or the associations or the AAAS as a social counsel.

Other participants observed that several societies have attempted to identify member concerns through polls--for example, the National Society of Professional Engineers, the American Society of Civil Engineers, the American Chemical Society, the Institute of Electrical and Electronic Engineers, and the American Institute of Architects have conducted such surveys in the past. However, the appropriate issues to be addressed in member polls, and the weight to be assigned to their results are not clear.

(5) Intersociety contacts and comparisons were recommended for several reasons, for example: to encourage the promotion of universal ideas and common definitions among professionals and societies, to promote the application of interdisciplinary analysis to ethical issues, and to provide professional and societies with an awareness of ethical concerns and impacts developed by other professions. Speaker LeRoy Walters (Kennedy Institute for Bioethics) reported that the field of bioethics had benefited from the experience and literature of other established disciplines.

References

1. Agenda Book for the Workshop on Professional Ethics. AAAS Professional Ethics Project, November 1979.

2. Bazelon, David L. "Risk and Democracy." An address to the National Academy of Engineering, November 1, 1979. The ECPD principles referred to in Judge Bazelon's comments are included in Appendix S.

3. Private correspondence from Professor Greenwood, professor emeritus at the University of California at Berkeley.

5

Highlights: Ethics Activities in Selected Societies

It would be a task far beyond the project's resources to reprint in detail within this report the ethical rules and procedures reported by each of the 178 societies which responded to the survey. We have selected a group of 13 societies, however, which have particularly noteworthy programs and statements. In some cases, the society's code or statement of ethical rules addresses difficult issues in ways that provide greater understanding of the primary values of importance to the profession. In others, the society has developed novel approaches for investigating or adjudicating complaints by or against their members, or has implemented unique sanction or support actions. A brief summary of these selected professional ethics activities is presented in this chapter.

We believe that other groups may benefit from the experiences of these organizations. Indeed, one of the main objectives of the AAAS Professional Ethics Project is to develop a means of presenting and comparing the various ethics activities of the affiliated societies to highlight points of strength and common interest and to identify ambiguities or inconsistencies in the professional ethics area.

The societies selected for further discussion in this chapter are:

American Anthropological Association (AAA)
American Association of Petroleum Geologists (AAPG)
American Association of University Professors (AAUP)
American Chemical Society (ACS)
American Political Science Association (APSA)
American Psychiatric Association (APA)
American Psychological Association (APA)
American Society of Civil Engineers (ASCE)
American Society of Mechanical Engineers (ASME)
American Sociological Association (ASA)
Institute of Electrical and Electronics Engineers (IEEE)
National Association of Social Workers (NASW)
National Society of Professional Engineers (NSPE)

American Anthropological Association

> In research, an anthropologist's paramount responsibility is to those he studies. When there is a conflict of interest, these individuals must come first. The anthropologist must do everything within his power to protect their physical, social and psychological welfare and to honor their dignity and privacy.
>
> --AAA Principles
> Section 1

Established in 1902, the American Anthropological Association (AAA) currently has approximately 11,000 members. About 80 percent of its members are employed by academic institutions or are students; the remainder work in government agencies or in the private sector.

In 1948, the AAA Council adopted a resolution on freedom of publication, emphasizing the importance of ensuring that research scientists funded by other institutions have "complete freedom to interpret and publish their findings without censorship or interference" provided that the interests of the research subjects were protected and that, if the sponsoring agency did not wish to be identified, publication be permitted through other channels.

Almost twenty years later, in 1967, the AAA Council adopted a second statement reaffirming the 1948 statement on freedom of publication and protection of research subjects. The 1967 statement also urged academic institutions to "not lend themselves to clandestine activities," and cited review procedures adopted by the State Department as a "dangerous potential for censorship of research."

Building on these two statements, the AAA Council adopted a set of rules of professional responsibility in May 1971 (see Appendix N). These rules have been amended since that time, but they continue to serve as the primary ethics statement of the Association. The AAA statement is particularly significant because two other professional societies--the American Association of Physical Anthropologists and the American Ethnological Association--which have not adopted any statement of ethical rules--indicated that their members subscribe to the AAA code.

The AAA rules identify six primary areas of responsibilities for the anthropologist: (1) relations with those studied; (2) responsibility to the public; (3) responsibility to the discipline; (4) responsibility to students; (5) responsibility to sponsors; and (6) responsibilities to one's own government and host governments.

The preamble to the AAA rules states that:

> In a field of such complex involvements, misunderstandings, conflicts and the necessity to make choices among conflicting values are bound to arise and to generate ethical dilemmas. It is a prime responsibility of anthropologists to anticipate these and to plan to resolve them in such a way as to do damage neither to those whom they study nor, insofar as possible, to their scholarly community. Where these conditions cannot be met, the anthropologist would be well-advised not to pursue the particular piece of research.

This statement is unique in three aspects. First, it acknowledges that conflicts between the various responsibilities of the anthropologist will occur and that choices between "conflicting values" will arise in the pursuit of scholarly work. Second, it offers criteria to be considered in addressing such conflicts, noting that the anthropologist should place highest regard on the well-being of the subjects of professional study and the integrity of the profession. Finally, the preamble suggests a method, although extreme, to avoid such conflicts if the acknowledged ethical priorities cannot be followed: the research should not be pursued.

AAA has a standing committee on ethics and convenes ad hoc committees of inquiry in response to complaints by members or persons outside the profession. It does not have an office or staff with responsibility for ethical matters. The Association has received 10 complaints involving non-members and members. All complaints have been investigated.

AAA has procedures for hearing a complaint and has issued one informal reprimand as a result of its investigations. AAA does not have any activities which support members who might appeal to the society for assistance as a result of an ethical conflict.

Current concerns about professional rights and responsibilities reported by AAA members include: confidentiality of informants; ownership of research results; relationships with students, colleagues, sponsoring agencies, and host governments.

American Association of Petroleum Geologists

> Talking about ethics always makes people uneasy. If you have them, you don't talk about them. If you don't have them, there's no point in talking about them.
>
> ...ethical standards are crucial to the credibility of a professional, and without credibility, the professional ceases to exist in any real sense.
>
> --AAPG President Robert D. Gunn (1979)

Over half of the 26,000 members of the American Association of Petroleum Geologists (AAPG) are reported to be employed in private industry. About 21 percent of the society's members are self-employed, with the remainder working at academic institutions, government, or as students. AAPG membership includes several categories stipulated by the society's by-laws. Active membership is dependent on several qualifications, including educational and professional credentials stipulated by the society. AAPG was established in 1917.

The Association has a statement of ethical rules, embodied in a formal code of ethics, most recently reviewed in 1963. The code establishes standards for relations between AAPG members and: (1) the public; (2) employers and clients; (3) other members, and (4) the Association. The code includes a section stipulating disciplinary actions in response to violations of the rules, and the society's by-laws provide for grievance proceedings. Section 3A describes the relations of members to employer and client and offers general guidelines regarding possible areas of ethical conflict. Section 3B suggests an extreme course of resolution for such conflict: resignation by the member.

> Section 3A A member shall protect, to the fullest extent possible, the interest of his employer or client so far as is consistent with the public welfare and his professional obligations and ethics.
>
> 3B A member who finds that his obligations to his employer or client conflict with his professional obligations or ethics should have such objectionable conditions corrected or resign.

The by-laws note that charges of misconduct shall be submitted by AAPG members "in good standing" and provide authority for the following sanctions: admonishment, suspension, resignation, or expulsion from the society. The society does not have any formal support procedures for assisting members involved in ethical conflicts.

AAPG by-laws provide for an Advisory Council which reports to the society's Executive Committee on all matters involving ethics and discipline. The Advisory Council serves as the investigative and interpretive authority for questions of ethics and as a tribunal for all disciplinary actions against AAPG members. In investigating a charge against a member, the Advisory Council appoints a committee including three of its own members and one former president of the Association to examine the charges. The Association does not have a staff or office responsible for matters relating to professional ethics.

Since 1970, AAPG has received five complaints from members against other members. Investigations of these complaints have resulted in two expulsions from the society and one formal censure action.

American Association of University Professors

> In the enforcement of ethical standards, the academic profession differs from those of law and medicine, whose associations act to assure the integrity of members engaged in private practice. In the academic profession, the indivi-ual institution of higher learning provides this assurance and so should normally handle questions concerning propriety of conduct within its own framework by reference to a faculty group. The Association supports such local action and stands ready...to counsel with any faculty member or administrator concerning questions of professional ethics and to inquire into complaints when local consideration is impossible or inappropriate.
>
> --AAUP Statement of
> Professional Ethics (1966)

The American Association of University Professors (AAUP) is one of the societies actively establishing basic ethical principles and procedures for members in the scientific and technical professions. The 70,000 members of AAUP are employed by academic institutions. Any person who holds a teaching or research position in a university or college in the United States or Canada may apply for active membership.

The AAUP does not have a formal code of ethics, but since its formation in 1915 it has adopted a series of major statements collected in a handbook, AAUP Policy Documents and Reports (1973 edition). The handbook includes the basic policy statements of the Association in the areas of academic freedom, tenure, professional ethics, and discrimination, as well as lesser known statements on issues such as "Professors and Political Activity" (1969), and "Academic Freedom and Tenure in the Quest for National Security" (1958).

The AAUP 1940 Statement of Principles of Academic Freedom and Tenure is regarded by many professional groups as a classic statement on professional rights and duties (the statement is reprinted in Appendix O). It has been officially endorsed by more than 100 professional societies throughout the United States, and has been extended through interpretive comments adopted by the Association in 1970. The purpose of the 1940 statement is "to promote public understanding and support of academic freedom and tenure and agreement upon procedures to assure them in colleges and universities." The statement further notes:

> The common good depends upon the free search for truth and its free exposition. Academic freedom is essential to these purposes and applies to both teaching and research. Freedom in research is fundamental to the advancement of truth. Academic freedom in its teaching aspect is fundamental for the protection of the rights of the teacher in teaching and of the student to freedom in learning. It carries with it duties correlative with rights.

The AAUP 1966 Statement on Professional Ethics is cited by the Association as its basic statement of responsibilities of the academic profession. The 1966 statement describes the special duties of the academic professor, placing special importance on the "primary responsibility...to seek and to tate the truth as he sees it." In addition, the Statement on Professional Ethics discusses the duties of the professor to the following groups: (1) students; (2) peers and colleagues; (3) the academic institution; and

(4) the community. The statement indirectly acknowledges potential conflict between the primary responsibility of the professor and his other duties ("although he may follow subsidiary interests, these interests must never seriously hamper or compromise his freedom of inquiry"), but it offers no method of resolving such conflicts.

The AAUP Committees A and B are standing committees, both established in 1915 to review matters relating to academic freedom and to professional ethics, respectively. Committee members are appointed for three-year terms. The Association's associate general secretary and several associate secretaries, acting on behalf of the committees, are the staff persons responsible for matters relating to academic freedom and professional ethics. The staff provides assistance to the committees in the formulation of policies, screens complaints and offers advice and assistance under these policies, and plays a mediation role in resolving disputes.

Numerous complaints have been received by AAUP since 1970, involving individuals (both members and non-members of AAUP) and their institutions. One source indicated that 1,200 complaints are received from faculty members every year (Chronicle of Higher Education, April 28, 1980). All complaints are examined in a preliminary way, and many are resolved informally. AAUP approaches an institution's administration to express its official concerns in about 150 cases a year. Formal investigations, leading to published reports and potential censure, may be authorized when an unresolved complaint appears to raise significant issues related to academic freedom and tenure.

As noted in the introductory quote to this section, AAUP's policy with respect to professional ethics concerns is that questions involving propriety of conduct normally should be handled within individual academic institutions by a faculty or peer group. AAUP itself does not provide any sanctions against individual members on the basis of professional ethics issues. Committee B has indicated that "it is difficult to conceive of procedures for the adequate redress of wrong and assurance of effective removal of such censure," and it does not recommend public censure of individual members. The Association does suggest procedures for university administrators to follow in considering the dismissal of faculty members, and it "stands ready to counsel" in matters relating to professional ethics.

The Association also provides counseling and mediation services for professional ethics concerns. Legal and financial assistance is available in the form of direct aid and loans.

Current ethics issues of major concern reported by AAUP include plagiarism, funding of academic programs by foreign states, and the relationship of intelligence agencies to academic institutions and faculty members.

American Chemical Society

> The American Chemical Society...is willing to assist individual members or groups of members involved in situations which they feel compromise their professional status or attainment.
>
> --ACS Member Assistance Guidelines (1977)

The American Chemical Society is one of the oldest and largest professional societies affiliated with AAAS. Established in 1876, ACS has about 120,000 members, about 50 percent of whom are employed by private industry. Twenty-two percent of the members work in academic institutions, and the remainder work in government agencies, hospitals, non-profit organizations, or other organizations. Members are required to have at least an undergraduate degree in chemistry or chemical engineering.

The ACS Chemist's Creed was approved by the ACS Council in 1965. It acknowledges the responsibility of the chemist to: (1) the public; (2) science; (3) the profession; (4) the employer; (5) the individual; (6) employees; (7) students and associates; and (8) clients. In 1978, the ACS governing boards approved a set of Professional Employment Guidelines, prepared by the ACS Council Committee on Professional Relations (see Appendix P). The preamble to the guidelines states that:

> The American Chemical Society seeks to enhance the productivity and economic welfare of both chemists and the employers of chemists by the delineation of employment practices that collectively foster the mutual confidence and mutual security of employers and employed chemists and by the review of the practices of individual chemists and employers.

The guidelines apply to both chemists and employers and specify terms of employment, employment environment, professional development, termination conditions, and the investigation of unprofessional conduct. Neither the Chemist's Creed nor the Professional Employment Guidelines are specifically subscribed to by individuals as part of their application for membership, but are suggested by the Society as general guidelines.

The ACS has a Council Committee on Professional Relations and a Board Committee on Professional and Members Relations which are responsible for matters relating to professional ethics. ACS also has an Office of Professional Relations, staffed by three full-time staff members, which, among other activities, assists members who allege they have been treated in a manner inconsistent with their professional status as chemists. The ACS Committee on Professional Relations is authorized to suggest policy and procedures in the area of professional relations and also to investigate instances of conduct by chemists or employers reportedly in violation of the Professional Employment Guidelines. Since 1970, about 200 complaints have been received by the society involving members against non-members, individuals and institutions--primarily in the area of employer-employee relations. More than half of these complaints have been investigated. The complaints include charges of unprofessional treatment as well as other issues addressed by the professional employment guidelines, such as multiple terminations or layoffs of chemical professionals.

A unique activity among the AAAS-affiliated societies is the ACS Member Assistance Program, which permits the Committee on Professional Relations to

extend assistance to chemists who have been treated unprofessionally. Documented unprofessional conduct by an employer can lead to citation by the ACS Council and subsequent publication in the society's weekly news magazine Chemical and Engineering News. When an ACS member informs ACS that he or she has been treated unprofessionally, the member is forwarded a copy of the Guidelines for Member Assistance Cases (developed by the Committee on Professional Relations) and a waiver which absolves the society of any responsibility for the consequences of the study (see Appendix P). In 1979, the ACS Office of Professional Relations received 11 formal requests for member assistance and 70 new requests through August 1980.

Upon receipt of the waiver and detailed information about the complaint, a subcommittee of the ACS Committee on Professional Relations reviews the claim and decides whether or not the problem falls within the member assistance guidelines. If they believe ACS can be of assistance, the complaint file is forwarded to one of three consultants (all retired ACS members) who are retained by the Committee to gather facts in such cases. The assigned consultant reviews the material, interviews the member and representatives of the employer involved, and then prepares a confidential report for the subcommittee and a recommendation for action. The subcommittee's recommendation is forwarded to the full Committee on Professional Relations, which takes an action reported to the ACS Council, the member and employer representative.

Financial assistance has been provided to seven members through the ACS legal aid loan program. The purpose of this program is to provide financial assistance in the form of loans to ACS members so that they may pay necessary legal fees arising from litigation involving their professional status or directly affecting their careers in chemistry. The loan limit is $2,000 but may be extended to $10,000 if suitable security is provided. The ACS Board of Directors makes the final determination regarding approval or disapproval of the loan application. ACS staff also provides counselling services to members.

The ACS Committee on Professional Relations has prepared a publication titled Legal Rights of Chemists and Engineers (1977) and is rewriting publications titled "Trade Secrets...Ethics and Law" and "Employment Agreements."

American Political Science Association

> For the political scientist faced with a problem of ethics or academic freedom, the immediate need is for direct assistance to his or her case. Any advisory opinion that may be written in reference to the case is, of course, laudable, but it is not a substitute for direct aid.
>
> --Jeffrey M. Berry
> PS Fall 1976

The American Political Science Association (APSA) was founded in 1903 and currently has about 13,500 members who are predominantly employed in academic institutions (75 percent) or in government (25 percent).

APSA concerns over issues related to professional ethics are addressed by its Committee on Professional Ethics and Academic Freedom, established in 1968. The Committee has published 18 advisory opinions, which usually grow out of individual complaints received by the Committee. The opinions have dealt with topics such as: permission to reprint; open access to documentation and data; fraud in claiming advanced degrees; the scholar's ethical obligations to protect confidential sources; and the deceptive use of scholarly status for purposes of political espionage. The opinions are published in the APSA Journal PS.

The Committee also occasionally publishes "urgent public statements" on important matters involving professional ethics or academic freedom, which are publicly released. These statements have addressed issues such as the supression of freedom in Chile and freedom of speech on campuses.

The APSA Committee operates under guidelines adopted by the Association in 1968. The Association also considered proposed rules of conduct for its members at that time, and adopted them as guidelines. The APSA procedures are related closely to the AAUP model, in that both organizations have developed an ethics program without endorsing a formal code of ethics for their members.

In addition to its work in developing advisory opinions for the Association, the APSA Committee handles individual grievances and complaints. After completing a preliminary investigation of a complaint, if the occasion warrants, the Committee will appoint a "special representative"--usually an APSA member who lives in geographic proximity to the complainant--to investigate the case. The special representative may mediate the dispute, but if mediation is not possible, he or she compiles a detailed report for the Committee to review. The Committee does not have the power to censure a member or the target of a complaint, but it actively works "to use persuasion and vigorous protest to rectify situations it is critical of." Where appropriate, APSA will turn to AAUP for assistance and also has established liaison with the American Civil Liberties Union.

The APSA has assigned a professional staff member with responsibility for working with the Ethics Committee. Since 1970, the Association has received about 40 grievance cases from members against other members or departments and has responded to all of them. The parties involved are informed of the Committee's decisions on individual complaints. The Association does not have formal sanctions but its judgments carry significance as reflections of proper professional conduct. The Association will provide mediation or counselling actions in support of members where appropriate. Cases which have been adjudicated by courts and, as such, are public are reported in the Association's journal PS. The general practice is not to publicize cases.

American Psychiatric Association

> It would seem self-evident that a psychiatrist who is a lawbreaker might be ethically unsuited to practice his/her profession. When such illegal activities bear directly upon his/her practice, this would obviously be the case. However, in other instances, illegal activities such as those concerning the right to protest social injustices might not bear on either the image of the psychiatrist or the ability of the specific psychiatrist to treat his/her patient ethically and well. While no committee or board could offer prior assurance that any illegal activity would not be considered unethical, it is conceivable that an individual could violate a law without being guilty of professionally unethical behavior.
>
> --APA Annotation to Section 3
> AMA Principles of Medical Ethics
> (1980 edition)

The American Psychiatric Association (APA) is one of the oldest professional societies affiliated with AAAS. Established in 1844, the Association has about 25,000 members, primarily physicians who have completed or are in psychiatric training programs. APA members are admitted by election to their local district branches. Information regarding the employment affiliations of APA members is not available from the Association.

All members of APA are bound by the ethical code of the medical profession as defined in the Principles of Medical Ethics adopted and recently revised by the American Medical Association. APA has developed and published annotations to these rules in order to apply them to the psychiatric profession.

The preamble to the AMA code states:

> The medical profession has long subscribed to a body of ethical statements developed primarily for the benefit of the patient. As a member of this profession, a physician must recognize responsibility not only to patients, but also to society, to other health professionals, and to self. The following Principles adopted by the American Medical Association are not laws, but standards of conduct which define the essentials of honorable behavior for the physician.

The code is composed of seven sections which address the fundamental assumptions of the medical profession about appropriate standards of care and service. The following statements are excerpted from these standards:

> A physician shall be dedicated to providing competent medical service with compassion and respect for human dignity.
>
> A physician shall continue to study, apply and advance scientific knowledge, make relevant information available to patients, colleagues, and the public, obtain consultation, and use the talents of other health professionals when indicated.

> A physician shall, in the provision of appropriate patient care, except in emergencies, be free to choose whom to serve, with whom to associate, and the environment in which to provide medical services.
>
> A physician shall respect the rights of patients, of colleagues, and of other health professionals, and shall safeguard patient confidences within the constraints of the law.

APA has developed extensive annotations on the medical code in the areas of patient confidence in the professions, determination of professional competence and unethical behavior, contract practices, sources of professional income, consultation, protection of confidential information, and service to the public welfare.

The APA established a national Ethics Committee in 1922, and district branch ethics committees also operate throughout the country. The APA Medical Director's office provides one full-time staff person for professional ethics. All ethics complaints received by the Secretary of the Association are investigated and mediated, where appropriate, by the local branch in which the psychiatrist member practices. The responsibility of the national Ethics Committee is to review district branch procedures to ensure that they are in accord with the code of ethics and APA Constitution. The national Ethics Committee also considers changes in the annotations, formulates judicial opinions on professional ethics and conduct, and holds appeal hearings in cases where a member appeals the decision of the district branch or the governing body. The district branch ethics committees investigate complaints, hold local hearings if warranted, and report their findings and decision to the national Ethics Committee for review and recommendation to the APA Board of Trustees.

Statistics regarding the number of professional ethics complaints received by APA are not available from the Association. The APA can expel, admonish, reprimand, or suspend members on the basis of professional ethics concerns but does not have statistics indicating how many times these sanctions have been used. The Association does not provide support services to its members but on occasion it will file an amicus brief in cases raising issues of importance to the profession. Information about the implementation of sanctions is held strictly confidential, and society members or the general public are not informed about such actions.

The Association reported that current member concerns about professional rights and responsibilities include the following: advertising; professional liability; advice for planning in the event of death or illness of psychiatrists; and confidentiality.

American Psychological Association

> Psychologists respect the dignity and worth of the individual and honor the preservation and protection of fundamental human rights. They are committed to increasing knowledge of human behavior and of people's understanding of themselves and others and to the utilization of such knowledge for the promotion of human welfare. While pursuing these endeavors, they make every effort to protect the welfare of those who seek their services or of any human being or animal that may be the object of study. They use their skills only for purposes consistent with these values and do not knowingly permit their misuse by others.
>
> --Preamble
> Ethical Standards of Psychologists
> (1979 revision)

Founded in 1892, the American Psychological Association (APA) is composed of about 50,000 members. Membership qualifications for the Association include an interest in the advancement of psychology as a science and as a profession and the receipt of a doctoral degree "based in part upon a psychological dissertation". About 50 percent of the APA members are employed by academic institutions, and about 24 percent are employed by hospitals, clinics or other human services organizations. The remainder are self-employed (13 percent) or are industry or government employees.

The first APA ethics committee was appointed in 1938, and its first code of ethics was adopted in 1953. In 1959, 18 general principles were abstracted from the code and were subsequently adopted as rules. The revised APA code, which has been reviewed about eight times since 1960, currently includes a preamble and nine general principles in the following areas: (1) responsibility; (2) competence; (3) moral and legal standards; (4) public statements; (5) confidentiality; (6) welfare of the consumer; (7) professional relationships; (8) utilization of assessment techniques; and (9) pursuit of research activities. In 1967, APA published a Casebook on Ethical Standards of Psychologists, which included the general rules as well as case examples illustrating the application of the rules to ethical problems. The Casebook also includes general guidelines in conducting growth groups, industrial psychology, and test practices, such as the following (see Appendix Q for a fuller citation).

> A psychologist in opinion research completed a study for a firm which used the findings in a case before the Federal Communications Commission. The lawyer for the adversary in the case demanded the names of the interviewees for the purported purpose of checking the evidence. The psychologist declined to comply with the request....
>
> Opinion. Since the psychologist offered to make available all of his data, including the completed questionnaires for examination as long as the identity of respondents had been first removed, he was not unethical in refusing to reveal the names in connection with the answers. In fact, since he had promised anonymity for the respondents, he would have been unethical in revealing the identity of the respondents.

APA has a standing Committee on Scientific and Professional Ethics and Conduct (established in 1953) and occasionally appoints ad hoc hearing and fact finding committees. The Association has given two full-time staff members responsibility for professional ethics matters, including an Administrative Officer for Ethics who serves as the CSPEC Secretary.

The rules and procedures of the APA Ethics Committee are detailed carefully and note that the Committee is authorized to investigate complaints of unethical conduct of APA members, to settle cases privately, to report on difficult cases, to recommend action on cases investigated, and to formulate ethical principles or rules for adoption by the Association. The Committee provides an annual report of the general types of action it has taken on each case, as well as the project activities of Committee members and Ethics Office.

The 1978 CSPEC report on casework notes that the Committee exercised 143 total actions" on confidential matters, including seeking more information, closing a case, or placing it in a hold file. The CSPEC Secretary noted that the Ethics Office had experienced a 50 percent increase in its case load in 1978 and was initiating arrangements to decrease this case load by referring cases to state psychological associations' ethics committees or a state board of examiners for initial investigation. Furthermore, "some of those states which have efficient ethics committees are now becoming increasingly concerned about suits being brought against members of their ethics committee".

APA can expel, censure, or reprimand members in matters relating to professional ethics and offers counseling and mediation services. Reports of expulsions are reported to members through a confidential memo giving the expelled member's name and the rule(s) violated which led to the expulsion. Informal sanctions are not reported. APA allocates about eight percent of its annual budget to ethics matters, the largest percentage reported by any AAAS-affiliated society. In January 1980 the APA Council established a Psychology Defense Fund to "help finance legal and legislative efforts" in response to challenges of concern to the profession. The Fund is supported solely by voluntary contributions.

Recent concerns about professional rights and responsibilities reported by APA members include: the right to afford confidentiality to research subjects, clients, and students; limits of professional advertising and media distribution of self-help procedures; and rights of minors and others who are unable to give voluntary, informed consent.

The APA ad hoc Committee on Ethical Standards in Psychological Research also has published a discussion of ethical rules in the conduct of research with human participants (1972), and in 1978, APA submitted an amicus curiae brief addressing ethical issues in the case of the National Labor Relations Board vs. the Detroit Edison Company.

APA currently is initiating a campaign to make a consumer version of their ethical standards available to the public.

American Society of Civil Engineers

> Members with questions or potential problems about ethics, from extortion to conflict of interest, can now get some expert and confidential advice by telephoning ASCE Headquarters...Members in need of advice will be able to tap the resources of an advisory board of distinguished engineers chosen for their years of experience and reputations for high ethical and professional standards....
>
> ...ASCE's legal counsel, who helped mount the new program, is on hand to consult with staff and the advisory board to check out any advice given to members, but not to counsel applicants directly.
>
> --Article in ASCE News
> December 1977

Established in 1852, the American Society of Civil Engineers (ASCE) has diverse occupational profiles among its 77,000 members. About 34 percent of ASCE members are employed by consulting firms, 33 percent by government agencies, and the remainder are evenly divided among academic institutions, private industry, construction firms and other organizations. Members are required to have a bachelor's degree from an approved curriculum as well as professional registration or license.

ASCE has a formal code of ethics, most recently revised in 1976, and has endorsed, along with several other engineering societies, the Fundamental Principles adopted by the Engineers' Council for Professional Development (see Appendix R). The ASCE's code of ethics was revised to bring it into accord with the ECPD rules following the endorsement.

The first Fundamental Canon of the ECPD code states that "Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties." Six other canons address the following issues: (1) competency; (2) public statements; (3) responsibilities to clients or employers; (4) competition with colleagues; (5) the integrity of the professional; and (6) professional development. The society has developed a set of guidelines which interpret the Fundamental Canons for ASCE members and has published a set of case studies, based on actual situations, to provide general guidance.

ASCE has three groups which are responsible for matters relating to professional ethics: the ASCE Committee on Professional Conduct, the Committee on Standards of Practice, and its subcommittee on the ASCE Code of Ethics. The society has a staff person assigned as part-time secretary to the Committee on Professional Conduct. The staff also handle inquiries to the society's confidential ethics advisory service.

ASCE has one of the highest complaint case loads reported by AAAS-affiliated societies. About 165 individual cases have been investigated or reviewed by ASCE since 1970, involving both complaints of members against members and of non-members against members. The society does not review complaints by members against non-members. The society indicated that charges of ethical misconduct are most commonly brought by non-members. Enough information must be supplied to establish reasonable cause for investigation by the Committee on Professional Conduct, and about 50 to 75 percent of the complaints have been investigated. Some of the ASCE Sections have local level professional conduct committees, which may assist with the

investigatory process. Since ASCE membership is primarily at the national level, only the Board of Directors can take disciplinary action. ASCE may expel members from the society, suspend members from one to five years, or formally censure or informally reprimand its members. The member may also resign with prejudice. The society provides counseling and mediation services.

Since 1970, the society has expelled six members, suspended 20 and formally censured 13. Eight members have resigned with prejudice, and a few have received informal reprimands. The society has provided its counseling and mediation services several times. Society members are informed about the implementation of a disciplinary sanction or support action through articles in the ASCE journal Civil Engineering, occasionally with identifying names.

The society also provides a range of education and information services about professional ethics to its members. These include Professional Conduct Case Studies, a videotape presentation of an ethics proceeding before the ASCE Board of Directors, and special conferences on ethical issues of concern to the engineering profession. Previous conferences whose proceedings were published by ASCE include the "Conference on Engineering Ethics" (1975), co-sponsored by several technical and engineering societies, and the conference on "Ethics, Professionalism, and Maintaining Competence" (1977), sponsored by the ASCE Professional Activities Committee.

The confidential ethics advisory service is a special telephone counseling service initiated by ASCE in 1977. The article describing the service in the society's newsletter indicates that "problems envisioned for the new service include questions about bribery and extortion, and unfair employment practices."

The primary aim of the service is to place engineers in need of counsel in contact with a member of a selected advisory group which can advise them of their rights and duties in a conflict situation.

American Society of Mechanical Engineers

> ...an unwillingness of professions to discipline those of its members whose practice is not in the public interest may result in its being policed by non-engineers, as industry is now being 'inspected' for OSHA...engineers of the future will at times need to adopt an adversary role to protect public health and safety, as well as its purse and resources.
>
> --D. H. Pletta
> Paper contributed by the ASME Technology and Society Division to the Engineering Applications Conference (1977)

The American Society of Mechanical Engineers (ASME) was established in 1880 and currently includes about 76,000 members and an additional 20,000 student members. ASME members are employed predominantly in private industry (85 percent), with the remainder divided among academic institutions, government, and self-employment. Members are required to have engineering experience and at least an undergraduate degree in an approved engineering curriculum.

ASME appointed its first ethics committee in 1913, becoming one of the first professional groups to do so. The Professional Affairs and Ethics Committee currently is responsible for matters relating to professional ethics. The Managing Director for Education and Professional Affairs is designated as responsible for professional ethics matters on a part-time basis.

ASME approved the original fundamental ethical canons adopted by the Engineers' Council for Professional Development in 1947 and has endorsed the subsequent revisions to the ECPD code (see the ASCE summary for a discussion of the ECPD canons). ASME has developed its own criteria for enforcement of the canons and has added an additional canon stating that: "Any Engineer accepting membership in the American Society of Mechanical Engineers by this action agrees to abide by this Council Policy on ethics and the procedures for implementation." This statement of member compliance with the codes is unusual within the AAAS-affiliated societies, but there are a few other comparable examples.

The ASME statement of council policy, adopted in 1978, outlines the society's procedure for reviewing unethical conduct cases (see Appendix S). The seven-page statement describes review procedures for handling unethical conduct cases through the complaint phase, the investigative phase, the hearing phase, and the review and appeal phase. The ASME procedures are among the most detailed for the AAAS-affiliated societies.

Since 1970, ASME has received 12 complaints involving professional ethics from a member against another member. The society has no policy to review complaints by members against non-members and has not received complaints originating from non-members. The society has investigated more than half of the complaints, resulting in at least one expulsion. The society may expel, censure, or suspend members for professional ethics concerns. The society has no provision for support service to a member in situations of disagreement with an employer or others on an ethical issue.

ASME previously has published a notice of expulsion with the member's name in the society's professional journal. However, this policy, which is

uncommon, was changed in early 1980. Council actions resulting in expulsion, suspension, or censure currently are reported without individual names.

The ASME Technology and Society Division has published several articles on social responsibility in its newsletter. In late 1979, the ASME President urged the newly formed American Association of Engineering Societies (AAES) to create a forum for review of engineering concerns about public health and safety.

American Sociological Association

> Sociological research, teaching, and practice, like other social processes, have positive and negative consequences for individuals and institutions; consequently, the work of sociologists must be enhanced and restrained by ethical considerations. Sociological knowledge can be a form of economic and political power, and sociologists therefore need to protect themselves, the discipline, the people they study and teach, their colleagues, and 'society as a whole' from abuses of power that may stem from their work.
>
> Agreement on what constitutes abuses of power is not easily reached.
>
> --Preamble
> ASA Code of Professional Ethics
> (proposed) (1980)

The 13,000 member American Sociological Association, established in 1905, is one of the smallest AAAS-affiliated societies which has committees actively concerned with professional ethics and issues surrounding infringement of the freedom of research and teaching. About 85 percent of ASA members are employed by academic institutions, and the remainder are divided evenly among industry, government, self-employment or non-profit organizations. Voting members hold advanced degrees in sociology.

The ASA currently has a code of ethics which was adopted in 1969. A new code has been in preparation for the past two years, and a working draft was published in the Association's January 1980 newsletter to solicit members' comments (see Appendix T). The new code was developed as a result of concerns that the previous code emphasized research issues to the exclusion of other professional activities performed by sociologists.

The proposed code includes a preamble and four major sections dealing with ethical rules related to research, publications and review processes, teaching and the rights of students, and relationships among sociologists. The proposed preamble notes that there are "possible conflicts between the responsibilities of sociologists to truth and knowledge and to the rights of their subjects, students, and associates" and indicates that these conflicts are "one justification for a code of ethics." The proposed ASA code represents one of the most recent attempts by professional societies to address the various conflicts associated with performing scientific research.

The current ASA code provides for a Committee on Professional Ethics, which is revising the code and procedures for handling complaints. ASA does not have a designated office or staff for professional ethics concerns, but indicated that staff members do work occasionally on these matters.

ASA has a second committee which addresses issues and cases related to the professional rights and duties of its members. The Committee on Freedom of Research and Teaching, established in 1968, has investigated a number of cases involving alleged discrimination on a variety of grounds. The Committee has a set of procedures by which they accept and investigate cases submitted by ASA members (see Footnotes, October 1979). It also has prepared a brochure entitled "Guidelines for Initial Appointments in Sociology."

The number of inquiries received during a year averages about ten while the number of cases actively investigated averages about five. The Committee can provide mediation, negotiation, and arbitration services for members. The Committee generally reports one to four cases a year with a recommendation for some type of sanction, including censure of the institution in question.

Institute of Electrical and Electronics Engineers

> The IEEE may offer support to any member involved in a matter of ethical principle which stems in whole or in part from such member's adherence to the Code of Ethics, and which can jeopardize that member's livelihood, compromise the discharge of such member's professional responsibilities, or which can be detrimental to the interests of IEEE or of the engineering profession.
>
> --Section 112(4)
> IEEE Bylaws (1979)

> The efforts of the (Member Conduct Committee) to raise ethical standards in engineering may be supplemented through other agencies. Two possibilities are (a) legislation to make it clear that engineers have a right to practice ethically and (b) the adoption, by employers of engineers, of internal procedures that encourage more responsible professional behavior.
>
> --"Engineering Ethics and the IEEE: An Agenda" by Stephen H. Unger (1980)

The Institute of Electrical and Electronics Engineers is the world's largest engineering society, and it has developed an active ethics program since the early 1970's. Established in 1963, with predecessor societies dating back to 1884, IEEE has a current membership of about 200,000. Over half of IEEE members are employed by private industry (53 percent), 30 percent are government employees, and the remainder work in academic institutions, are employed by other institutions, or are self-employed.

The IEEE code of ethics was revised most recently in 1979. It includes a preamble and four articles which specify professional standards for IEEE members, professional employment practices, relations with employers and clients, and responsibilities to the community. Additionally, the IEEE Bylaws and the Policy and Procedures Manual include sections on member discipline and support (added in 1975) in matters of ethical principle (see Appendix U). The IEEE statement on member support is unique and was incorporated into its bylaws as a result of membership concern about the need for an explicit statement authorizing the society to intervene in such matters. This action represents a pioneering effort by a professional society to encourage adherence to its professional standards of ethical conduct by providing support actions for its members.

IEEE has several policy statements relating to matters of ethical concerns which empower its governing groups to develop amicus curiae briefs, to review and investigate complaints (restricted to notarized statements by IEEE members which are delivered by certified mail to the society's offices), to initiate proceedings against IEEE members, and to provide support regarding employment or professional activities which may be affected by member adherence to the IEEE Code of Ethics. The IEEE Member Conduct Committee (MCC) reviews complaints and requests for support submitted to the society, and its investigation and review procedures are detailed in the society's policy manual. IEEE does not have staff or an office designated as solely responsible for professional ethics matters.

Since 1970, IEEE has received 10 complaints from members against members, and 5 member requests for support. The society has not received any complaints involving non-members. More than 75 percent of the complaints have been investigated. IEEE may expel, suspend or censure its members on professional ethics issues. To date, no sanctions have been imposed in response to the complaints received by the society.

With respect to member support, the IEEE may publish findings in support of the member and may take such further action as "may be in the interest of the member, the IEEE or the engineering profession." A report of the first member support case under the new bylaws was published in the society's newsletter in December 1978, indicating that the society had upheld the member's action and had submitted correspondence to her personnel file endorsing the member's actions as being consistent with the best interests of the profession (see Appendix U).

The IEEE United States Activities Board (USAB) has established an Ethics Task Force which has among responsibilities, the task of recommending candidates to chair the MCC; establishing a liaison function with the Committee working on a "unified code" for the engineering profession; establishing methods to keep the IEEE membership informed regarding professional ethics; and providing a forum for receipt of members' comments and testimony on ethical matters. In addition to this, the IEEE also has a Committee on Social Implications of Technology, which has been concerned about the problems of supporting ethical engineers who experience difficulties in upholding the society's code. The Committee submitted an amicus curiae brief for the Institute in the early 1970's to assist an IEEE member involved in a whistle-blowing incident over the BART system in California. The Committee has developed a public interest service award, and it publishes a newsletter on social concerns in the engineering profession.

National Association of Social Workers

> The ethical behavior of social workers results not from edict, but from a personal commitment of the individual. This code is offered to affirm the will and zeal of all social workers to be ethical and to act ethically in all that they do as social workers...
>
> In subscribing to this code, social workers...should take adequate measures to discourage, prevent, expose and correct the unethical conduct of colleagues. Finally, social workers should be equally ready to defend and assist colleagues unjustly charged with unethical conduct.
>
> --Preamble, The NASW Code of Ethics (1979)

The National Association of Social Workers was established in 1955 with the merger of seven predecessor social work organizations and currently has over 80,000 members. A slight majority of NASW members are employed by government agencies at all levels (50-55 percent). The remainder are employed by private (usually non-profit) groups (30-35 percent) or academic insitutions. A significantly growing number are in self-employed practice as therapists or consultants. A small number of social workers are employed in business or industrial firms or work in private industry.

NASW adopted a code of ethics in 1960, based on one recognized by one of the predecessor organizations. NASW's code was revised most recently in 1979. The Association also has adopted standards for personnel practice which can serve as the basis for adjudication of complaints.

The NASW code includes a preamble and six major sections which address standards of personal and professional conduct and responsibilities to clients, colleagues, employers, and society. The code was developed by an ad hoc task force which extensively reviewed existing codes of other professional societies to assist their efforts to construct a new NASW code. In particular, the goal of the task force was to develop a revised code which would both provide social workers with standards of ethical practice and also serve as a basis for adjudication of complaints.

The NASW task force on ethics was disbanded following the adoption of the revised code. A standing National Committee on Inquiry reviews complaints about unethical conduct involving NASW members. A portion of the time of two staff members has been assigned for professional ethics matters, including administrative support for the society's ad hoc and standing committees.

With respect to individual complaints, NASW adjudication procedures provide for three categories of complaints: complaints against NASW members for unethical conduct; complaints against agencies for violation of NASW personnel standards; and complaints against agencies for imposing limitations or penalties on professional action taken on behalf of clients. A study of the Association's case files involving complaints against NASW members indicated that from 1955 to 1977, a total of 154 individual complaints of unethical conduct were processed with over 40 percent of these complaints received in 1976 and 1977 alone. The Association has received an additional 75 ethical complaints in 1978 and 1979. Sanctions may include suspension or expulsion from the organization, formal censure, informal reprimand, or recommendation for revocation of state license. The most frequent sanction applied by the society is private censure. Sanction reports against NASW members can be published with names.

In its investigations, NASW relied upon a local committee on inquiry to function as the group convening a hearing and forming a recommendation in response to an individual complaint. The NASW National Committee on Inquiry has recently indicated that it favors a policy which would require local chapters to reimburse the national office for the cost of conducting adjudication site hearings when the local chapters failed to conduct hearings of their own.

With respect to complaints involving organizational behavior, NASW also relies upon local committees to convene hearings in response to specific allegations. When a local committee finds that an organization is in violation of its own personnel standards, or has imposed limitations for professional action and has failed to take corrective action, the chapter's report is published in the NASW newsletter in a manner similar to the procedures used by the American Association of University Professors in censuring university groups. The NASW Board of Directors also may approve additional sanctions against recalcitrant agencies. Currently 16 agencies, primarily hospitals, local community health centers, or counseling clinics, continue in violation of NASW adjudication findings, primarily in the area of personnel standards. The list of institutions is regularly publicized by the Association, with the note that "NASW members are encouraged to take such information into account when considering employment or other relations with listed respondents."

In the area of support actions for individual members who may experience ethical conflicts, NASW reported that it did not offer any formal arbitration, counseling or financial or legal assistance services other than the adjudication procedures outlined above. Informal consultation is provided by chapter and national staff.

The Association's journals and newsletter have published the reports of the Task Force and those of the National Committee on Inquiry, which describe in detail the problems involved in constructing a new code of professional ethics. The society also offers workshops on ethical issues, usually at the local chapter level.

National Society of Professional Engineers

For more years than one cares to remember, the engineering profession has been plagued with an apparently insoluble problem of how to deal with ethical restraints on the advertising of engineering services, or even whether there should be any degree of control.

--Milton Lunch, NSPE
General Counsel (1977)

Professionalism and ethics are twins, inseparably bound together in the concept that professional status and recognition must be based upon public service under a higher duty than mere compliance with the letter of the law.

--"Ethics for Engineers" (NSPE)
(1974)

Petitioner's ban on competitive bidding prevents all customers from making price comparisons in the initial selection of an engineer, and imposes the Society's views of the costs and benefits of competition on the entire marketplace. It is this restraint that must be justified under the Rule of Reason, and petitioner's attempt to do so on the basis of the potential threat that competition poses to the public safety and the ethics of its profession is nothing less than a frontal assault on the basic policy of the Sherman Act.

--From an Opinion by Justice Stevens,
Supreme Court Decision in U.S.
vs. NSPE (1978)

The National Society of Professional Engineers is the professional society which represents the engineering profession as a whole rather than a particular engineering discipline. Established in 1934, the membership of NSPE is about 78,000 and is composed mainly of licensed engineers. A majority of NSPE members are employed by private industry (50 percent), and the remainder are evenly divided between government (20 percent) and self-employment (20 percent). Other members work in academic institutions or with other groups such as the military.

NSPE has a formal code of ethics which was most recently revised in 1979. The Society also publishes advisory opinions based on an interpretation of its code and guidelines related to employment or publication practices.

The NSPE code includes a preamble and 15 sections which address the engineer's responsibility to the public, the engineering profession, employers or clients, and colleagues.

NSPE has a standing Ethical Practice Committee (formed in 1946) which regularly reviews the code of ethics and an Ethics Review Task Force which is an ad hoc group established in 1976. In addition, the NSPE Board of Ethical Review issues advisory opinions interpreting the code. NSPE also appoints a Judiciary Board to review cases appealed by aggrieved members whose cases have been reviewed at the state level. The office of the NSPE General

Counsel is responsible for matters relating to professional ethics, and one staff person is assigned this responsbility on a part-time basis.

Since 1970, the national office of NSPE has received two complaints involving its members and issues of professional ethics. Most complaints are filed at the state level, and statistics on these cases are not readily available. Charges of unethical conduct by anyone may be filed with the state society.

NSPE may expel members, formally censure or reprimand its members, or recommend revocation of member licenses on ethical grounds. Since 1970, NSPE has suspended one member.

The society offers financial and legal assistance to its members in support of ethical concerns. It has provided financial or legal assistance in about 10 cases, representing an active member support program compared to other societies. Society members are informed about the implementation of sanction or support actions through reports in the national or state magazines (as appropriate).

In the mid-1970's NSPE was involved in major litigation with the Department of Justice regarding the ban on competitive bidding included in its ethical code. The controversy resulted ultimately in a decision by the Supreme Court which ruled that the ban imposed unfair restraint upon free competition and was thus in violation of the Sherman Anti-Trust Act. By order of the Court, NSPE has rescinded all policy statements, opinions, rulings, or other guidelines which might be construed as prohibiting engineers from providing price information to prospective clients. The NSPE revised code notes that engineers individually may refuse to bid for engineering servies, and clients are not required to seek bids.

The NSPE has published four volumes which include the collected advisory opinions of the Board of Ethical Review during the period 1964-1975. The advisory opinions are based on actual facts or hypothetical circumstances involving NSPE members and are submitted by the state societies or individual members (see Appendix V). The advisory opinions are published regularly in the Society's national journal. The Society's journal publishes feature articles on concerns related to engineering ethics, and NSPE has sponsored workshops on these topics as well.

Current member concerns about professional rights and responsibilities as reported by the Society include employment conditions, such as pensions, salaries, job titles, and others.

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Conclusions and Recommendations

Drawing conclusions and recommendations from a project of this scope is not an easy undertaking. As noted in previous chapters, one of the major difficulties encountered by the authors throughout the project was the absence of common concepts or definitions within the scientific and engineering societies as to what constituted a statement of ethical principles, rules of conduct, or other activities associated with ethical concerns within their profession. Terms such as "principles" and "rules," often are used interchangeably. As a result, there is a range of viewpoints among the societies over whether a code of ethics should be viewed as a general statement of the moral values of importance to the profession, as a statement of aspirations, or as a quasi-legal guide for adjudicating complaints and standardizing the ethical norms shared by professional colleagues.

As a result of these various perspectives, it is not surprising to see little evidence of strategies or mechanisms for implementing or enforcing ethical rules in the scientific and engineering societies. Formal complaint procedures, safeguards respecting the rights of all parties, and sanction and support actions rarely are available and even more rarely used. The societies appear to share a common assumption that complaints involving ethical concerns or code violations should be handled in an informal and private manner. As a result, formal decisions in response to individual complaints are rare and are not publicized to the members of the profession or to the general public. The project revealed much interest, but few visible programs, in encouraging attention to ethical concerns through positive incentives as well as rules of conduct in the societies. In the words of one of the workshop participants, promoting attention to ethics requires a ceiling as well as a floor in sensitizing scientists and engineers to the impact of value choices in their professional work. There is a real need for efforts to assist in the resolution of disagreements arising from various priorities placed on different values.

It was not within the scope of our study to explore the causes for the societies' preference for informal approaches to ethical concerns. This preference may be a result of the demographics of the societies themselves, or it may be linked directly to the nature of scientific inquiry. It also may be a result of a lack of member interest in this area. Whatever the cause, it is clear that in general most of the societies surveyed in this project have not articulated or clarified the basic ethical principles of importance to their profession.

A number of societies, however, particularly the primary societies representing the larger disciplines, have adopted rules of conduct derived from some undefined set of general principles. This may reflect a common experience among the societies that it is easier to agree upon the rules themselves than the underlying reasons supporting each rule.

Where societies have developed formal statements, the distinctions between general principles and rules of conduct are unclear. As a result, evaluating member conduct on the basis of the statements is extremely difficult.

The situation might be characterized as one of "laissez-faire ethics," where scientists and engineers commonly are left to decide for themselves--or to be guided by rules developed by groups outside the profession--what set of values should influence the development and application of their professional knowledge.

We live in a time of increased concern about the social impacts of science and technology--a concern manifested both within and outside the professional societies. The professional societies are regarded by many as one of the primary institutional voices for the professions, and as such these groups may be expected to clarify and support more directly the basic values and ethical rules which they believe their members should follow as a professional group. Our basic assumption is that public scrutiny of the professions will result eventually in an increase expectation that societies will articulate and clarify the norms which underlie their ethical rules. As this "value-clarification" process becomes more visible, principles which do not adequately address public concerns as well as member interests may become a source of greater conflict.

The principles and rules developed as part of professional ethics activities may serve two basic functions. They may provide both a forum for professionals to examine the range of values associated with their discipline in an impartial fashion and also a means for professions to instill in their members basic values intended to influence their professional behavior. These two approaches are not necessarily exclusive. However, there is some question regarding the extent to which the societies' role should be one of re-enforcing and supplementing the concept of an individual acting as an independent moral agent, or one of defining specific values--and deriving "proper professional conduct" from them--for individual members to observe in the broader interests of the profession and the welfare of society as a whole. At this time, the appropriate balance between these two approaches to ethical concerns has not been resolved within the scientific and engineering community.

Each approach has its own merits. Thus, while a society might use its educational and meeting activities to reinforce the examination of ethical issues associated with science and technology through an open-ended, exploratory approach (thus supporting the concept of individual choice), a society also might clarify the basic rules reflecting the consensus among colleagues about appropriate professional conduct when moral conflicts arise. The latter rules are perhaps all the more necessary in order to establish the degree of independence necessary to maintain a respect for individual choice in ethical matters.

In the following conclusions and recommendations, we reflect back on our findings and suggest ways to stimulate attention to professional ethics concerns within the scientific and engineering societies. These findings should provoke further interest in ethics issues and point to some future research options which, on the basis of our study, appear to be most promising. They should be viewed as the preliminary result of an on-going process of continuing study and discussion. We recognize that the societies are at many different stages of development in addressing ethical concerns within their professions. Some recommendations clearly will have greater significance for the larger societies or those representing fields focused on more immediate technical application of professional knowledge rather than basic scholarly inquiry. Other recommendations may be of more relevance for smaller or newly formed groups which are beginning to examine the need for a statement of ethical principles or rules of conduct within their professions.

We also believe that these findings will highlight important areas for future attention and discussion--not only for the societies themselves, but also for those who seek to stimulate reflection on moral issues accompanying the development and application of scientific and technical knowledge and on

the role of professional societies in this process. It is our hope that the societies' experiences in struggling with these issues will form a firm foundation for generating new insights.

Conclusions

General

1. Among the scientific and engineering societies included in our study, little attention and only minimal resources have been directed toward professional ethics matters. Examples of regular monitoring and periodic assessment of ethics activities are rare.

2. There are few formal channels for communication about professional ethics among the societies, between the societies and their members, or between the societies and non-members. As highlighted in Chapter 5, several societies, in one way or another, have addressed critical ethics issues associated with the professional activities of their members. Yet, there are no strategies or mechanisms to facilitate systematically the exchange of such information or experiences across societies. When such exchanges do occur, they are more likely to be among societies representing similar disciplines (e.g., the social and behavioral sciences) than among societies representing distinct disciplines (e.g., the engineering and social sciences). This is unfortunate, for while there may be obvious differences between the kinds of ethical issues affecting the various professions, there are also many common concerns (e.g., confidentiality). The societies could benefit from the experiences of others with, for example, the design and implementation of complaint and hearing procedures.

Communication on ethics matters between the societies and their members generally occurs in a random fashion. Less than one-third of the societies reported that they provide education and information relating to professional ethics to their members, while almost one-half indicated that they undertake no such efforts. These responses are reinforced by the replies to the question on membership concerns. Less than one-third of the societies reported that their members had communicated concerns regarding ethical matters. Yet ethical issues are inevitably linked to the exercise of professional authority, and opportunities for their development and resolution of possible conflicts are more likely to occur through open discussion and review. At present, however, such discussion is not standard practice in the societies.

Collectively our sample of societies has taken few initiatives to inform non-members about their professional ethics activities. For example, only six societies have made any formalized effort to alert non-members to the presence of procedures for initiating complaints against members. There is little evidence of attempts by societies to inform non-members of disciplinary measures instituted against professionals to whom non-members might turn later for assistance. If the scientific and engineering societies are to earn the public's trust and maintain some reasonable degree of independence, then the public may expect them to demonstrate their ability to ensure that their ethical norms serve the public's interest and are observed by their members. If societies are perceived as not serving public goals, there undoubtedly will be increased demands for external forms of accountability.

3. Few societies systematically collect and maintain data on their professional ethics activities. Throughout the survey, responses suggested that no data were available or that precise figures could not be determined. This paucity of data makes evaluation of a society's programs a difficult if not impossible task for outsiders or the society itself. Without data and periodical evaluations, the societies may find it difficult to respond to the complex ethical issues posed by the development and use of science and technology.

4. It is difficult to undertake a comparative analysis or assessment of the professional ethics activities of those societies included in our study. The societies' data vary greatly in availability and format. Another serious problem arises from varied definitions of the same terms by different respondents. The most obvious example is "professional ethics complaints." The term "professional ethics" itself as defined in the survey questionnaire was subjected to varying interpretations by the respondents. Definitions and measurements of ethics "complaints" also varied considerably among the societies.

Additional difficulties arise from the heterogeneity of the surveyed societies, which have different goals, administrative structures, and relationships with clients. Such details often were not captured by our survey. Improved conceptual understanding of the activities pursued by the societies is essential--and so is the use of more sensitive techniques and strategies of investigation if useful measurement and assessment criteria applicable across societies are to be developed.

Ethical Rules

1. As a group, the ethical statements adopted by the societies demonstrated a marked preference for dealing with ethical issues on a general and abstract level. Formal enunciation of the objectives of the statements and the rules is rare; equally uncommon is detailed explanation of the values or underlying principles which determined those rules. While we recognize the need to assure flexibility in ethical rules, vaguely-worded prescriptions are likely to invite neglect or self-serving behavior.

2. Very few of the societies' statements provided a clear basis for establishing priorities between two or more rules which, although not inherently inconsistent, in practice may present the scientist or engineer with conflicting obligations. Even in those instances where the statement declares that members have a "paramount" duty to "the safety, health and welfare of the public," there are no clear criteria for determining whether public, employer, or professional opinions should be given greater weight when evaluating possible action in cases where the "facts" of a given situation are ill-defined. In some cases, the statements will clearly identify a primary responsibility, but no further guidance is offered for assigning priorities to the host of secondary responsibilities.

3. The development and enforcement of ethical rules reflect some uncertainty in the science and engineering societies over the relationship between their legal and ethical obligations as professionals. The inclusion or exclusion of certain rules is influenced by the societies' perceptions of what the law requires. The legal status of the societies' enforcement of their ethical rules, including the application of sanctions and support actions, is not clearly established. For example, society representatives at the workshop expressed considerable uneasiness over the prospects for aggressive ethical code enforcement because of fears that their tax status would be affected adversely or that they might be exposed to costly litigation initiated by those "harmed" by such enforcement. The circumstances that create conflict among ethical rules, their enforcement, and legal requirements need to be carefully explored and defined.

4. When viewed as part of a larger self-regulatory system, the ethical rules adopted by our sample societies present several problems. The rules are unlikely to be of much value in the formal adjudication of grievances because of their abstract or imprecise terms. As a consequence, enforcement becomes problematic and possibly counterproductive if the society is perceived by its members or others to be inconsistent or overly dogmatic in its interpretation of "improper" behavior. In addition, the statements rarely inform members of their precise responsibilities to report possible violations of the rules, and

only one of the statements examined refers to the benefits for members who diligently comply with the rules. If the societies are to be part of a larger self-regulatory system and their rules are intended to be something more than just "aspirational," their members should be aware of the consequences for those who abide by or deviate from the rules.

5. The circumstances and values that precipitate moral dilemmas for scientists and engineers are not static, but rather are subject to the same forces that affect the social, economic, and political environment in which science and engineering take place. Changes in public policy, the employment profile of a society's membership, or the distribution of the benefits and costs of new technology among the general population--all are examples of events that might call into question the appropriateness of one or more of a society's ethical rules. Almost all of those societies which have adopted ethical rules also have established some mechanism for reviewing and modifying them. These mechanisms differ in administration as well as structural detail. Although the data do not enable us to comment directly on the level of membership involvement in the review and modification process, decisions to retain or alter current provisions are more likely to be accepted by the members and outsiders who are given an opportunity to participate in the decision-making process.

6. The absence of formal rules of ethical conduct within a society should not be equated necessarily with disinterest or professional arrogance. A society may demonstrate by other means its concern for the ethical implications of its members' actions. Whether these approaches are satisfactory alternatives to the adoption of ethical rules depends, in large part, on the functions that each alternative is expected to perform and the success of each alternative.

Policies and Procedures

1. The procedures for administering and implementing the wide range of ethics activities revealed by the survey is related to some extent to the resources available to the societies. In more than just a few cases, the larger societies, with generally greater manpower and financial resources, were more likely to have initiated the activities identified in Figure 1, particularly review and modification procedures, commitment of staff time, and investigatory and appeals procedures. Although not directly analyzed in the study, the availability and application of sanctions and support actions probably are influenced substantially by society resources.

2. The availability and use of sanctions and supports are not well developed areas of society activity. Where sanctions do exist they are used infrequently. And when sanctions are applied to members, the societies generally do not inform other members or non-members of the action taken. Members who seriously seek to comply with their society's ethical rules can expect very little in the form of support activities. Very few societies, for example, offer financial or legal assistance to their members. Overall, the current emphasis of enforcement activities is on reaction and discipline rather than on prevention and incentives.

Effective enforcement by the societies will generate costs from the time and effort required to monitor member behavior, to disseminate information, to respond to complaints, and to register disapproval or commendation. The scientific and engineering societies may not be willing to exercise this role or able to absorb such costs by themselves.

3. The low level of society activity in sanctions and supports may reflect a tendency for societies to rely on informal control arrangements, although the strength of this tendency was not measured by our survey. Such arrangements are open to manipulation, however. A system of controls which

lacks visibility and structure may precipitate rather than reduce the incidence of error in skill or judgment. This is likely to be the case if the system fails to clarify the importance of adhering to certain rules and the consequences of violating those rules. Finally, informal controls, removed from the public eye, diminish opportunities for response and corrective action by those outside the profession who are affected most directly by professional performance.

Recommendations

1. The scientific and technical societies should develop programs and activities to sensitize both their members and the public to the values affecting the development and use of professional knowledge. The societies should recognize that such values will be considered in a casual and ad hoc manner in the absence of institutional activities designed to bring them to member attention. The societies' emphasis on such programs should at the very least be consistent with the size and scope of their organizational activities as a whole.

The activities of the societies should supplement and support the concept of the individual professional acting as an independent moral agent, and, where appropriate, they also should include rules and guidelines to help resolve conflicts in cases where the society's members have reached a consensus on the proper course of professional conduct.

2. The societies should strive to identify the basic ethical principles which represent the shared aspirations of their profession. These principles should clarify the ethical "goods" of the profession and the reasons why such "goods" are important to professional work. The principles should be clarified through discussions at society meetings and interpretive articles, and should be distributed to all applicants for society membership.

3. The societies should recognize that ethical principles are guidelines, not rules, which cannot be imposed or broken. When conflicts arise among principles, however, societies should develop rules of conduct both to guide members' choices and to establish a public standard of behavior against which allegations of abuse or unprofessional conduct might be judged.

Ethical rules may acknowledge selected ethical principles, but the societies should distinguish between the two in their formal statements. Statements of principles can be used as a statement of the ethical ideals of the profession in an educational sense. Statements of rules for professional behavior, on the other hand, should serve a regulatory function. Societies which adopt "educational codes" will sensitize their members and the public to values which are of importance to their profession. But such codes cannot serve as the basis for adjudicating complaints of "unprofessional behavior." On the other hand, rules which specify standards of member conduct and which offer a basis for adjudication and enforcement may not recognize broader values involved in professional work.

Thus, each approach has unique advantages and disadvantages. Educational codes may be more appropriate for newly formed disciplines or small, homogeneous societies. Societies whose members work in many employment settings may require standards which specify more clearly the norms governing the behavior of their members in order to establish common approaches within the profession to resolve ethical conflicts in the application of professional knowledge.

4. Societies should prepare rules of professional conduct which can be understood easily both by the members and those affected by the members' professional work. Members should have an opportunity to acknowledge that they are familiar with the ethical rules of their profession and that they expect

to follow them as a condition of their membership in the society. Efforts should be made to educate the general public about the societies' rules, and employers also should be informed about the existence of such rules by the societies. Any conflicts between the societies' rules and employers' policies should be addressed in a way that re-affirms the public service tradition of the professions.

5. Rules of professional conduct should be accompanied by procedures for adjudicating complaints and providing society sanction or support actions (if necessary). Every society that adopts such rules should establish a recognized procedure by which complaints of unprofessional conduct or requests for assistance can be brought to the attention of authorized representatives of the society.

6. Societies should recognize that principles or rules which place a paramount concern on protecting the health and safety of the public may place their members in conflict with their employers. Societies that receive member requests for assistance (as a result of conflicts arising from member adherence to society rules) should try to provide support services to their members, including counseling and mediation activities, and, if necessary, financial or legal aid.

7. Professional societies should ensure that serious allegations of unprofessional conduct, whether raised by persons within or outside the profession, are reviewed in a manner that provides a fair and thorough review for all parties. In particular, the societies should develop policies regarding access to and disclosure of information collected in the course of adjudication and enforcement activities.

Such reviews may be time-consuming and costly, and if a large number of complaints are received, societies may need financial support to implement fair review and resolution of serious disputes. Experimental models for review should be evaluated and funded by the societies and others who wish to facilitate the resolution of such disputes in a fair and objective manner.

8. Professional societies should conduct periodic reviews of values important to their members' work. Changes in these values--and the emphasis placed upon them--will occur and should be expected given the changing social context for developing and applying scientific and technical knowledge. If conducted every four or five years, these reviews should provide an opportunity for the societies to identify new trends and areas of potential conflict requiring further attention.

Professional journals and newsletters should be encouraged to poll their readers from time to time to identify ethical concerns and report on individual cases raising significant issues for the profession.

9. The societies periodically should publish and distribute a report on the "State of Professional Ethics" in their profession. The report should include information on the society's ethics activities, identify members and staff working in this area, review the number and types of complaints or requests for support received by the society, and report the resolution of these cases. The report also should refer to pertinent society publications and summarize future activities.

10. The societies should coordinate their professional ethics activities to call attention to concerns that cut across disciplinary lines. To facilitate such coordination, primary responsibility for addressing professional ethics concerns should be assigned to a senior staff and/or a concerned member in each society.

11. Representatives of the public and private groups affected by the professional work of scientists and engineers should have an opportunity to ex-

press their concerns to the societies' members. The societies should establish visible and accessible channels for such exchange of views, including open forums at the societies' annual meetings, guest editorials in the societies' journals, and other approaches. Societies whose members are licensed for public service should consider appointing public representatives to review boards or licensing panels.

12. Professional societies should recognize that they are one of several groups--including employers, and non-governmental and governmental organizations--which develop rules and guidelines affecting the professional work of scientists and engineers. This mix of institutional actors produces a formal and informal regulatory system which directly affects the values that shape the development and application of scientific and technical knowledge. Ethical concerns and conflicts often highlight values that may not be shared universally--or shared with equal emphasis--by these various institutions.

The societies should be alert and responsive to such concerns, providing opportunities to review various perspectives on controversial ethical issues for their members in a timely fashion.

13. The societies actively should seek to ensure that those organizations which employ their members recognize the importance of ethical concerns associated with the development and application of science and technology. The societies should urge employers to provide formal channels to resolve differences of opinion precipitated by moral values in conflict between their professional and management staffs. The existence of such dissent procedures should be considered an essential part of a professional working environment in large organizations.

14. As noted in the introductory chapter, the range of activities pursued by the societies is affected by internal and external forces as well as by contemporary and historical trends. Yet knowledge of the influence wielded by these factors is seriously undernourished. Case studies of individual societies over time as well as comparative studies involving two or more societies should improve our understanding of the interaction between the societies and their external environment and of the impact that such interaction has on the societies' actions.

15. It is fair to say that we do not have well-defined benchmarks for evaluating the performance of the scientific and engineering societies on matters of professional ethics. Nor are there widely accepted and experienced institutional mechanisms guaranteed to improve the quality of the societies' performance. The societies and those outside who are concerned with their performance should conduct studies designed to identify useful criteria and to apply these criteria to measure and evaluate the full range of ethics activities implemented by the societies. This will not only advance the state of theoretical and empirical analysis of the professions and their ethics activities, but it will also generate alternative strategies which the societies could employ effectively to fulfill their institutional responsibilities related to professional ethics.

Appendix A

American Association for the Advancement of Science

Affiliated Organizations and Their Sectional Interests

The letters following the names of the affiliates indicate the AAAS sections in which each organization is enrolled.

Academy of Criminal Justice Sciences—J, K, Q, X
Academy of Psychosomatic Medicine—N, J, R
Acoustical Society of America—B
Alpha Epsilon Delta—N
American Academy of Arts and Sciences—X
American Academy of Forensic Sciences—N, C, S, H, R
American Academy of Neurology—C, G, N, S
American Academy of Optometry—N
American Academy of Psychoanalysis—N, J
American Alpine Club—E
American Anthropological Association—H, T
American Association for Dental Research—R, N, G
American Association of Anatomists—N
American Association of Cereal Chemists—O
American Association of Colleges of Pharmacy—S
American Association of Dental Schools—R
American Association of Immunologists—N
American Association of Pathologists—N
American Association of Petroleum Geologists—E
American Association of Physical Anthropologists—H
American Association of Physics Teachers—B, Q
American Association of Scientific Workers—X
American Association of University Professors—Q, X
American Astronautical Society—B, D, M, N, W
American Astronomical Society—D
American Bryological and Lichenological Society—G
American Ceramic Society—M
American Chemical Society—C, T
American College of Cardiology—N
American College of Chest Physicians—N
American College of Dentists—R
American College of Gastroenterology—N
American College of Radiology—N
American Dairy Science Association—O
American Dental Association—R
American Dietetic Association—N
American Economic Association—K
American Educational Research Association—Q
American Ethnological Society—H
American Fisheries Society—G, W
American Folklore Society—H
American Genetic Association—G, N, O
American Geographical Society—E, W
American Geological Institute—E, W
American Geophysical Union—X
American Industrial Hygiene Association—P, C, M, N
American Institute of Aeronautics and Astronautics—B, M, T, W
American Institute of Biological Sciences—G, O, Q, T
American Institute of Chemical Engineers—M, C
American Institute of Chemists—C
American Institute of Industrial Engineers—M
American Institute of Physics—B, D, L, P, T
American Library Association—T
American Mathematical Society—A
American Medical Association—N
American Medical Writers' Association—T, N, X
American Meteorological Society—B, M, T, W
American Microscopical Society—G, T
American Nature Study Society—Q
American Nuclear Society—B, M, Q, C, A
American Oil Chemists' Society—C
American Ornithologists' Union—G
American Pharmaceutical Association—S
American Philosophical Association—L
American Physical Society—B, C, P, Q, T
American Physical Therapy Association—N
American Physiological Society—N, G
American Phytopathological Society—G, O
American Political Science Association—K
American Psychiatric Association—N, J, Q
American Psychoanalytic Association—N, J, Q
American Psychological Association—J
American Public Health Association—N, R, U, M, G
American Rheumatism Association—N
American Society for Aesthetics—X
American Society for Cybernetics—J, K, N, T
American Society for Engineering Education—M
American Society for Horticultural Science—O, G, Q
American Society for Information Science—T
American Society for Mass Spectrometry—B, C, G, N, T

American Society for Medical Technology–N
American Society for Metals–M, T
American Society for Microbiology–N, O
American Society for Pharmacology & Experimental Therapeutics–N
American Society for Quality Control–M, U, X
American Society of Agricultural Engineers–M, O
American Society of Agronomy–O
American Society of Animal Science–O, G, N, T
American Society of Biological Chemists–C, N
American Society of Civil Engineers–M
American Society of Clinical Hypnosis–N, R, J
American Society of Criminology–K
American Society of Heating, Refrigerating and Air-Conditioning Engineers–M
American Society of Hospital Pharmacists–S
American Society of Human Genetics–G
American Society of Ichthyologists and Herpetologists–G
American Society of Limnology and Oceanography–G, W
American Society of Mechanical Engineers–M
American Society of Naturalists–G
American Society of Parasitologists–G
American Society of Photogrammetry–M, A, E
American Society of Plant Physiologists–G
American Society of Plant Taxonomists–G
American Society of Zoologists–G
American Sociological Association–K
American Speech and Hearing Association–J, N, Q
American Statistical Association–U, K, N, P, T
American Vacuum Society–M, B
Animal Behavior Society–G
Anthropological Society of Washington–G, H, K, [illegible], X
Archaeological Institute of America–H
Arctic Institute of North America–E, X
Associação Brasileira de Química–C
Association for Computing Machinery–A, T, U
Association for Symbolic Logic–A, L
Association for the Study of Man-Environment Relations–G, J, K, X
Association for Women in Science–C, G, J, N, Q
Association of American Geographers–E, K
Association of Clinical Scientists–N
Association of Earth Science Editors–T
Association of Southeastern Biologists–G
Astronomical Society of the Pacific–D, Q
Behavior Genetics Association–G, N, J
Beta Beta Beta Biological Society–G
Biofeedback Society of America–J, N, X
Biometric Society, Eastern and Western North American Regions–U, G, N, O
Biophysical Society–X
Botanical Society of America–G
Chi Beta Phi Scientific Fraternity–X, A, C, G
Conference Board of the Mathematical Sciences–A, Q, T, U, X
Consortium on Peace Research, Education and Development–K, Q, J, X
Cooper Ornithological Society–G
Council of Biology Editors–T
Eastern Psychological Association–J
Ecological Society of America–G, W
Electrochemical Society–C, M, P
Electron Microscopy Society of America–B, G, X
Entomological Society of America–G
Forum for the Advancement of Students in Science and Technology–X
Gamma Alpha Graduate Scientific Society–X
Gamma Sigma Delta–O
Genetics Society of America–G
Geochemical Society–E, C
Geological Society of America–E, W
Gerontological Society–N, G, K
History of Science Society–L, X
Human Factors Society–J, M, K, N, T
Illuminating Engineering Society of North America–M, A, G, J
Institute of Electrical and Electronics Engineers–M, P, Q, B, T
Institute of Environmental Sciences–M
Institute of Food Technologists–C
Institute of Management Sciences–P, K, A, U, L
Institute of Mathematical Statistics–U, A, G, T
Institute of Navigation–M, B, D
Institute on Religion in an Age of Science–X
Instrument Society of America–M
International Communication Association–J, K, T, X
International Society of Educational Planners–K, Q
International Solar Energy Society, American Section–B, C, G, M, P
International Studies Association–To be assigned.
Linguistic Society of America–H
Marine Technology Society–W
Mathematical Association of America–A, Q, T, U, X
Medical Library Association–T, N
Midwestern Psychological Association–J
Mycological Society of America–G
National Association for Research in Science Teaching–Q, X
National Association of Biology Teachers–Q, G
National Association of Geology Teachers–E
National Association of Science Writers–T
National Association of Social Workers–K, Q, T
National Council for Geographic Education–E
National Council of Teachers of Mathematics–A, Q
National Federation of Abstracting and Indexing Services–T
National Science Teachers Association–Q
National Society of Professional Engineers–M
National Speleological Society–E, G
National Wildlife Federation–G, X
Nature Conservancy–G, E
Oak Ridge Associated Universities–B, N, T, G
Operations Research Society of America–P, A, K, U, M
Optical Society of America–B
Paleontological Research Institution–E
Paleontological Society–E, G
Parapsychological Association–X
Pattern Recognition Society–T
Phi Beta Kappa–X
Phi Sigma Biological Society–G
Philosophy of Science Association–L
Phycological Society of America–G
Pi Gamma Mu, National Social Science Honor Society–K
Pi Lambda Theta–Q
Population Association of America–K, U
Potato Association of America–O
Poultry Science Association–O

Rural Sociological Society—K
School Science and Mathematics Association—Q
Seismological Society of America—E
Sigma Delta Epsilon, Graduate Women in Science—G, N, Q, X, O
Sigma Pi Sigma—B, L, Q, A
Sigma Xi, The Scientific Research Society—X
Society for American Archaeology—H
Society for Applied Anthropology—H
Society for Clinical and Experimental Hypnosis—J, N, R
Society for Environmental Geochemistry and Health—C, E, G, N, X
Society for Experimental Biology and Medicine—N
Society for Experimental Stress Analysis—M
Society for General Systems Research—K, L, M
Society for Industrial and Applied Mathematics—A, P, M, T, U
Society for Investigative Dermatology—N
Society for Range Management—G, O, Q
Society for Research in Child Development—J
Society for Social Studies of Science—X
Society for Technical Communication—T
Society for the History of Technology—L, H, K, M, P
Society for the Scientific Study of Religion—K, L
Society for the Study of Economic Botany—G
Society for the Study of Evolution—G
Society for the Study of Social Biology—G, J, K, N
Society of American Foresters—O
Society of Biological Psychiatry—N
Society of Economic Paleontologists and Mineralogists—E
Society of Exploration Geophysicists—E
Society of General Physiologists—G, N
Society of Manufacturing Engineers—M, P
Society of Protozoologists—G
Society of Systematic Zoology—G
Soil Conservation Society of America—O
Southern Society for Philosophy and Psychology—J, L
Speech Communication Association—J, K, Q, T
Tau Beta Pi Association—M
Torrey Botanical Club—G
U.S. Metric Association—M
Volunteers in Technical Assistance—M, O, X
Western Society of Engineers—M, X
Western Society of Naturalists—G
Wilderness Society—X
Wildlife Management Institute—G
Wildlife Society—G
World Population Society—G, K, N, Q, U

American Association for the Advancement of Science

Reprinted from Scientific Freedom and Responsibility, a report prepared for the AAAS Committee by John T. Edsall. (Washington, D.C. AAAS, 1975), pp. 36-40.

Many scientific and engineering societies have developed codes of ethics, relating to the responsibility of employers and to the professional and personal conduct of scientific and technical employees. A highly articulate expression of such concerns is to be found in a statement on "Employment Guidelines," which has now been adopted by at least 20 engineering and scientific societies. For the most part, it is concerned with the general principles that should govern relations between employers and employees, but it also contains the significant statement: "The professional employee should have due regard for the safety, life and health of the public and fellow employees in all work for which he/she is responsible. Where the technical adequacy of a process or product is involved, he/she should protect the public and his/her employer by withholding of plans that do not meet accepted professional standards and by presenting clearly the consequences to be expected if his/her professional judgment is not followed" [(*56*), p. 59].

The formulation of such a declaration is a significant event. How much it means depends, of course, on the effectiveness with which it is applied. Moreover, these guidelines, like most such codes of ethics that we have seen, lack a very important ingredient, namely, a provision for the arbitration of disputes. The protection of individuals from arbitrary action by authority is deeply ingrained in English common law, and the U.S. Constitution provides that "no person shall . . . be deprived of life, liberty, or property without due process of law." We believe that some form of due process should be an essential part of any employer-employee agreement or contract, to protect the employee from arbitrary action by the employer, allegedly based on professional or personal misconduct. A minimum requirement for such due process would involve a hearing by a board, including independent members, with the right of appeal to some reasonably neutral but professionally qualified higher authority. Codes of professional ethics are likely to be ineffective unless some type of due process is provided for the resolution of disputes. Without this, scientific freedom is likely to be abridged. We therefore strongly recommend that all employment contracts involving scientific or professional employees include such provisions for the review of disputes through hearing and appeal processes. Provision for neutral or third-party participation is important, particularly when issues of public interest are involved. . . . .

How active can, and should, professional societies be in actively fighting on behalf of their members who are attempting to defend the public interest? Most such societies have in the past remained aloof from conflicts of this sort, and have often taken the attitude that the purity of their devotion to the advancement of their respective sciences

would somehow be contaminated if they entered the public arena to contest such issues. We believe that such attitudes are no longer appropriate. The scientific community can no longer remain apart from the conflicts of our time, where so many technological decisions are being made that vitally affect the well-being of society. We are not proposing that professional societies should take public stands on large general political issues, such as the legitimacy of the Vietnam War; individual members of the societies, when their concern is aroused, should deal with these matters by other mechanisms. However, in matters directly related to the professional competence of members of the society, where the public interest is clearly involved, we believe that the societies can and should play a much more active role than in the past. They can deal with such issues by setting up committees of inquiry, in cases where a serious violation of scientific responsibility is suspected; by publicizing the results of the inquiry in professional journals, and, if necessary, in the more popular journals and in the news media; and by calling the matter to the attention of governmental bodies, as with the California Legislature in the BART case. They can on occasion launch lawsuits on behalf of members who have apparently suffered injustice when acting on behalf of the public interest.

In stating this, which is our major new proposal for dealing with "the objective and impartial study of these problems," we are aware of the difficulties that the proposal will face. The most serious problems are those of time and money. Most professional societies have limited funds; many operate more or less on a shoestring. They keep members' dues fairly small; otherwise members drop out, particularly in times of economic hardship. The fighting of difficult cases, on behalf of members involved in controversy, can be a very expensive business, especially if the case goes into the courts. In any case, it would require that responsible scientists spend time in serving on hearing panels, studying large bodies of evidence, and preparing reports; this would involve a substantial sacrifice of precious time for them.

When a professional society does fight for the rights of its members, it is more likely to be concerned with defending their status and pay than to be acting primarily on behalf of the public interest as its primary motive. The impetus to take actions of the latter sort is likely to be much less strong than the desire to provide direct help to members of one's own professional group.

These are powerful obstacles to our proposals, but they are not insuperable. Societies that share common interests, but which may be individually too weak financially to support such activities, may band together in groups to finance the necessary operations. There are increasing pressures upon scientists, engineers, and other members of the scientific community to face these public issues and deal with them effectively. These pressures come both from the public and from within the ranks of the scientists themselves. We have spoken, earlier in this report, of the mistrust and hostility toward science that is manifest in many quarters; one reflection of this attitude is the decline in

government support of science in recent years. Such hostility will almost certainly grow unless scientists exhibit greater concern for preventing the misuse of science and technology. As this becomes clearer, it will become easier for the professional societies to obtain additional funds to carry the expenses of lawsuits, hearing panels, and other activities undertaken in the defense of the public interest. Whether government funds could or should be available for such purposes is open to question; but it is likely that some of the major private foundations, either those now in existence or those yet to be created, will see the urgency of supporting such public service activities. The need for these activities may also lead to the creation of other social mechanisms for dealing with these problems, of a sort that we cannot now foresee. We look to increased activity of the professional societies as the most hopeful approach to the problem in the immediate future.

Appendix B

Survey Cover Letter

June 1, 1979

Dear (Executive Officer):

We ask your assistance in examining the policies and procedures of AAAS-affiliated professional societies, as they relate to professional ethics. Our study concerns both the content of existing ethical principles adopted by the societies and the manner of their enforcement and implementation. The study adopts a broad definition of professional ethics, including those principles that define the rights and responsibilities of scientists and engineers in their relationships with each other and with other parties, including employers, research subjects, clients, students, etc.

Our project is jointly supported by the program on Ethics and Values in Science and Technology of the National Science Foundation and the Science, Technology and Human Values program of the National Endowment for the Humanities. We are, however, responsible for the content of the enclosed questionnaire, which we ask that you complete in order to provide us with information regarding your society's policies and procedures in matters related to professional ethics. The data generated by this survey will provide in part the basis for a fall workshop on professional ethics to discuss the implications of the survey's findings. A report summarizing the findings of the survey and the workshop will be distributed to all AAAS-affiliated societies and respondents.

We realize that not all the survey questions will apply to each society. However, we believe it is important to provide each respondent with the entire questionnaire in order to collect complete information and also to create a basis for comparing the different forms of professional society activity in this area.

We would greatly appreciate your cooperation in completing the questionnaire and returning it by June 22. In a time of considerable professional and public interest in the rights and responsibilities of scientists and engineers, we hope that this project will contribute to an informed and responsible discussion of the issues.

Sincerely,

Mark S. Frankel
Assistant Professor of Political Science
Wayne State University

Rosemary A. Chalk
Staff Officer, AAAS Committee on
Scientific Freedom and Responsibility

AAAS Professional Ethics Project

Survey of Scientific and Engineering Associations

Professional Ethics: Principles and Practices

June 1979

INSTRUCTIONS: The following questions ask for specific information that we hope will be readily available to you. We realize that not all the questions will be applicable to each professional society. At any time you believe that the response to a question can be provided by existing documentation, please feel free to enclose the pertinent documents (or references to published items) and note at the appropriate place on the questionnaire: "Documentation Enclosed." If a particular question is not applicable to your organization, please write "N.A."

We encourage you to elaborate on your answers whenever you wish to do so. Please feel free to add additional pages when space is not adequate for your response.

In this survey, "professional ethics" refers to those principles that are intended to define the rights *and* responsibilities of scientists and engineers in their relationship with each other and with other parties including employers, research subjects, clients, students, etc.

General Information

1. a. Please identify your professional society:

   b. When was your society established?

   c. What is the current size of your membership?

   d. Approximately what percentage of your members are employed by:

   _____ Academic institutions

   _____ Industry

   _____ Government

   _____ Self-employed

   _____ Other (please explain)

Ethical Principles

2. Has your society adopted any statement of ethical principles?

   _____ Yes _____ No (If not, move to question 5)

3. If yes, what form do those principles take? (Check all that apply)

   _____ Formal code of ethics
   _____ Advisory opinions
   _____ Resolutions
   _____ Guidelines (employment, publication, etc.)
   _____ Other (please explain)

Please Enclose With The Questionnaire a Copy of Any Ethical Principles Referred to in Question #3 Currently in Force

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4. Does your society have procedures for reviewing and modifying the ethical principles to which your members subscribe?

   _____ Yes _____ No

   a. Please elaborate on any procedures for review and modification.

   b. Since 1960, how often has such a review occurred?

   _____ None since 1960 _____ 6 to 10 times

   _____ 1 to 5 times _____ More than 10 times

c. What year(s) did the *most recent* review and modification occur?

5. If ethical principles have not yet been adopted, is your society currently studying the prospects of doing so?

_____ Yes (If yes, please describe the nature of the current study.)

_____ No (If not, please elaborate on the reasons why your society has not developed principles governing professional ethics.)

Staff and Committee Roles

6. a. Does your society have staff and an office designated as responsible for matters relating to professional ethics?

_____ Yes (If so, please provide the formal title of the office)

_____ No (If not, move to question 7)

b. How many full-time or part-time staff are currently assigned this responsibility? (Please indicate the appropriate number.)

_____ Full-time _____ Part-time

c. What are the specific responsibilities of such staff (screening complaints, advisory roles, mediation, etc.)?

7. a. Are there standing or ad hoc committees responsible for matters relating to professional ethics?

_____ Yes (If so, please list the committee(s), the year they were established, and identify as standing or ad hoc.)

_____ No (If not, move to question 8.)

b. What is the scope of responsibility of the committee(s) listed above?

c. How are committee members selected?

Complaint Procedures

8. Since 1970, approximately what number of complaints involving professional ethics (including rights or responsibilities) have been received from a:

   _____ Member against member

   _____ Member against a non-member (organization or person)

   _____ Non-member (organization or person) against member

   _____ None received

9. What procedures exist for a society member or non-member to bring such a complaint before your society?

10. Please describe the efforts by your society to inform members and the public about procedures for bringing a complaint relating to professional ethics.

11. How are outside parties (involved in the complaint) contacted?

Investigation Procedures

12. Does your society have procedures for investigating a complaint?

    _____ Yes _____ No (If not, move to question 13)

    a. Who is responsible for deciding that an investigation is warranted?

    b. What criteria are used in making the decision to investigate?

    c. Who conducts the investigation?

    d. What are the powers of the investigator(s)?

    e. Since 1970, approximately what percentage of complaints received have been investigated? (Check one)

       _____ Less than 25%

       _____ From 26% to 50%

       _____ From 51% to 75%

       _____ More than 75%

Hearing Procedures

13. Does your society have procedures for hearing a complaint?

_____ Yes _____ No (If not, move to question 14)

a. Who is responsible for deciding that a hearing is warranted?

b. What criteria are used for determining that a hearing should be convened?

c. What representatives of the society participate in the hearing? How are they selected?

d. Are the parties involved in the complaint permitted to have witnesses or legal counsel appear in their behalf?

Witnesses: _____ Yes _____ No

Legal Counsel: _____ Yes _____ No

e. Are records of the hearing proceedings maintained by your society?

_____ Yes _____ No

f. Access to the record of the hearing is:

_____ Open without restriction

_____ Limited to certain parties (please explain)

_____ Restricted by time (please explain)

_____ Other restrictions (please explain)

_____ No policy regarding access is currently in force

14. If your society does not have established procedures for investigating and/or hearing a complaint relating to professional ethics, how are such matters usually handled?

Decision Procedures

15. Who is responsible for issuing a decision in a case involving a complaint relating to professional ethics?

16. In cases where a decision is made, what criteria are used to evaluate a complaint relating to professional ethics?

17. Please list all parties routinely notified of the decision.

Appeal Procedures

18. Does your society have procedures for appealing a decision relating to professional ethics?

_____ Yes _____ No (If not, move to question 19)

a. Is an appeal automatically granted a hearing upon request?

_____ Yes _____ No

b. If not, what criteria are applied to deciding that a hearing on an appeal is warranted?

c. Who decides that a hearing on an appeal will be granted?

d. Please describe the efforts by your society to inform members and the public about existing appellate procedures on matters relating to professional ethics.

e. Since 1970, approximately how many decisions on matters relating to professional ethics have been appealed?

_____ None since 1970

_____ 1 to 5

_____ 6 to 10

_____ More than 10

Sanction and Support Actions

19. What kinds of sanctions and support activities are available to your society to use in matters relating to professional ethics involving individual members? (Check all that apply)

Sanctions

_____ Expulsion from the society

_____ Formal censure

_____ Impeachment of a society officer for abuse of authority

_____ Informal reprimand

_____ Pecuniary Fine

_____ Recommendation for revocation of license

_____ None

_____ Other (please explain)

Support Actions

_____ Arbitration

_____ Counseling

_____ Financial Assistance

_____ Legal Assistance

_____ Mediation

_____ None

_____ Other (please explain)

20. Who is responsible for deciding which sanction or support activity will be employed?

21. For each of the sanctions or support activities checked in question 19, who is responsible for administering the action?

22. Please elaborate on the procedures employed to implement the sanctions and support activities checked in question 19.

23. Since 1970, approximately how many times has each of the *sanctions* checked in question 19 been used?

_____ Expulsion from the society

_____ Formal censure

_____ Impeachment of a society officer for abuse of authority

_____ Informal reprimand

_____ Pecuniary fine

_____ Recommendation for revocation of license

_____ Other (please explain)

24. How many times have the *support* actions been used?

_____ Arbitration

_____ Counseling

_____ Financial assistance

_____ Legal assistance

_____ Mediation

_____ Other (please explain)

25. Are society members informed about the implementation of sanction or support actions?

_____ Yes (If so, how? Are reports published with identifying names?)

_____ No

26. a. Does your society offer education or information about professional ethics to your membership?

_____ Yes _____ No

b. If yes, how is this information provided:

_____ Newsletter announcements

_____ Journal articles

_____ Special publications (please explain)

_____ Workshops

_____ Other (please explain)

Budget Information

27. a. In the most recent fiscal year for which figures are available, approximately how much of your society's annual budget was for professional ethics matters?

_____ Amount _____ Fiscal Year

b. What percentage of the total fiscal year budget of your society does the amount given in 27(a) represent?

Membership Concerns

28. Have your members expressed concerns about their professional rights and responsibilities?

If so, what kinds of concerns have been expressed? (Please give specific examples.)

Name and title of person completing the questionnaire:

_____

_____

_____ (date)

THANK YOU

Please return the questionnaire and all accompanying materials to:

Mark S. Frankel
Department of Political Science
Wayne State University
Detroit, Michigan 48202

Appendix C

Societies with Membership Open to Laypersons/Students*

American Anthropological Association
American Association of Petroleum Geologists
American Society for Metals
American Society of Plant Taxonomists
American Statistical Association
American Vacuum Society
Association for Women in Science
Linguistic Society of America
Mathematical Association of America
Mycological Society
National Speleological Society
Paleontological Society
Parapsychological Association
Speech and Communication Association
Society of American Foresters
The Wildlife Society

*There are probably additional societies to those listed here. Several referred to "other" under membership employment (Question #1d.) but offered no elaboration.

Appendix D

Classification of Societies by Type

To assist with the interpretation of the survey data, the societies included in the data tabulations* were classified into seven categories according to type:

1. Biology and Agriculture
2. Education and Communications
3. Physical Sciences and Mathematics
4. Engineering and Technology
5. Social and Behavioral Sciences
6. Medicine and Health Sciences
7. General

Classification of the societies is based on materials supplied by the respondents and/or descriptions of the societies' purposes and activities appearing in Scientific, Technical and Related Societies in the United States, Ninth Edition (Washington, D.C.: National Academy of Sciences, 1971).

Since the membership of the responding societies is highly diverse with respect to the focus of their work and the setting in which it is performed, any classification scheme such as this is likely to generate reasonable differences of opinion over the placement of individual societies. The classification presented here and the findings it suggests should be viewed with caution.

*One society responded by only forwarding its statement of ethical rules of conduct and is included only in the tabulations for questions #2 and #3 and the analysis of ethical rules found in Part I.

Types of Societies

Biology and Agriculture (37)

American Dairy Science Association
American Fisheries Society
American Genetic Association
American Microscopical Society
American Society of Biological Chemists
American Society of Human Genetics
American Society of Ichthyologists and Herpetologists
American Society of Limnology and Oceanography
American Society of Naturalists
American Society of Parasitologists
American Society of Plant Physiologists
American Society of Plant Taxonomists
American Society of Zoologists
Animal Behavior Society
Association for the Study of Man-Environment Relations
Association of Southeastern Biologists
Behavior Genetics Association
Biometric Society, Eastern North American Region
Biometric Society, Western North American Region
Biophysical Society
Botanical Society of America
Cooper Ornithological Society
Ecological Society of America
Institute of Environmental Sciences
Mycological Society of America
National Speleological Society
Potato Association of America
Society for Economic Botany
Society for Environmental Geochemistry and Health
Society for Range Management
Society for the Study of Evolution
Society for the Study of Social Biology
Society of American Foresters
Society of Protozoologists
Society of Systematic Zoology
Western Society of Naturalists
Wildlife Society

Education and Communications (11)

American Association of Physics Teachers
American Library Association
American Society for Engineering Education
National Association for Research in Science Teaching
National Association of Biology Teachers
National Association of Geology Teachers
National Council for Geographic Education
National Council of Teachers of Mathematics
National Science Teachers Association
Society for Technical Communication
Speech Communication Association

Physical Sciences and Mathematics (24)

Acoustical Society of America
American Association of Petroleum Geologists
American Astronomical Society
American Chemical Society

American Institute of Chemists
American Mathematical Society
American Meteorological Society
American Nuclear Society
American Oil Chemists' Society
American Physical Society
American Society for Mass Spectrometry
American Vacuum Society
Association for Symbolic Logic
Astronomical Society of the Pacific
Electron Microscopy Society of America
Geochemical Society
Geological Society of America
Institute of Mathematical Statistics
Mathematical Association of America
Optical Society of America
Paleontological Society
Society for Industrial and Applied Mathematics
Society of Economic Paleontologists and Mineralogists
U.S. Metric Association

Engineering and Technology (17)

American Institute of Aeronautics and Astronautics
American Institute of Chemical Engineers
American Institute of Industrial Engineers
American Society for Metals
American Society of Agricultural Engineers
American Society of Civil Engineers
American Society of Heating, Refrigerating and Air-Conditioning Engineers
American Society of Mechanical Engineers
American Society of Photogrammetry
Institute of Electrical and Electronics Engineers
Institute of Food Technologists
Institute of Navigation
Instrument Society of America
Marine Technology Society
National Society of Professional Engineers
Pattern Recognition Society
Society of Manufacturing Engineers

Social and Behavioral Sciences (25)

Academy of Criminal Justice Sciences
American Anthropological Association
American Association of Physical Anthropologists
American Economic Association
American Ethnological Society
American Folklore Society
American Political Science Association
American Psychological Association
American Sociological Association
American Speech-Language-Hearing Association
American Statistical Association
Association of American Geographers
Gerontological Society
Human Factors Society
Institute on Religion in an Age of Science
International Studies Association
Linguistic Society of America
Midwestern Psychological Association

National Association of Social Workers
Population Association of America
Rural Sociological Society
Society for American Archaeology
Society for Research in Child Development
Society for Social Studies of Science
Society for the Scientific Study of Religion

Medicine and Health Sciences (23)

Academy of Psychosomatic Medicine
American Academy of Optometry
American Association for Dental Research
American Association of Anatomists
American Association of Colleges of Pharmacy
American Association of Dental Schools
American Association of Immunologists
American Association of Pathologists
American College of Chest Physicians
American College of Gastroenterology
American College of Radiology
American Dental Association
American Industrial Hygiene Association
American Physical Therapy Association
American Physiological Society
American Psychiatric Association
American Psychoanalytic Association
American Society for Pharmacology
and Experimental Therapeutics
American Society of Clinical Hypnosis
Association of Clinical Scientists
Biofeedback Society of America
Society for Clinical and Experimental Hypnosis
Society of General Physiologists

General (10)

American Association of University Professors
American Philosophical Association
American Society for Aesthetics
Association for Women in Science
Association of Earth Science Editors
Council of Biology Editors
History of Science Society
Parapsychological Association
Society for the History of Technology
Volunteers in Technical Assistance

Appendix E

Societies That Have Adopted Ethical Rules

American Academy of Optometry
American Anthropological Association
American Association of Colleges of Pharmacy**
American Association of Dental Schools
American Association of Petroleum Geologists
American Association of University Professors
American Chemical Society
American College of Radiology
American Dental Association
American Fisheries Society
American Institute of Aeronautics and Astronautics
American Institute of Chemists
American Institute of Industrial Engineers*
American Meteorological Society
American Oil Chemists' Society
American Philosophical Association
American Physical Therapy Association
American Physiological Society*
American Political Science Association
American Psychiatric Association*
American Psychoanalytic Association
American Psychological Association
American Society of Biological Chemists
American Society of Heating and Refrigerating and Air-Conditioning Engineers
American Society of Naturalists
American Society of Photogrammetry
American Sociological Association
American Speech-Language-Hearing Association
Association of American Geographers
Ecological Society of America
Institute of Electrical and Electronics Engineers
Institute of Food Technologists
Institute of Navigation**
National Association of Biology Teachers
National Association of Social Workers
National Society of Professional Engineers
National Speleological Society
Rural Sociological Society**
Society for American Archaeology
Society for Clinical and Experimental Hypnosis
Society for Range Management

* Also subscribe to rules adopted by another professional society.
** Did not forward copies of their ethical rules.

Society for Research in Child Development
Society for Technical Communication
Society of American Foresters
U.S. Metric Association
Wildlife Society

Appendix F

Societies Reporting No Adoption of Ethical Rules*

Academy of Criminal Justice Sciences
Acoustical Society of America
American Association for Dental Research
American Association of Anatomists
American Association of Immunologists
American Association of Physics Teachers
American Astronomical Society
American Dairy Science Association
American Economic Association
American Folklore Society
American Genetic Association
American Industrial Hygiene Association
American Institute of Chemical Engineers
American Library Association
American Mathematical Society
American Microscopical Society
American Physical Society
American Society for Mass Spectrometry
American Society for Metals
American Society for Pharmacology and Experimental Therapeutics
American Society for Human Genetics
American Society of Ichthyologists and Herpetologists
American Society of Limnology and Oceanography
American Society of Parasitologists
American Society of Plant Physiologists
American Society of Plant Taxonomists
American Society of Zoologists
American Statistical Association
Animal Behavior Society
Association for Symbolic Logic
Association of Earth Science Editors
Association of Southeastern Biologists
Biometric Society, Eastern North American Region
Biometric Society, Western North American Region
Biophysical Society
Botanical Society of America
Cooper Ornithological Society
Council of Biology Editors
Electron Microscopy Society of America
Geochemical Society
Geronotological Society
Human Factors Society
Institute of Environmental Sciences
Institute of Mathematical Sciences
Instrument Society of America

International Studies Association
Linguistic Society of America
Mathematical Association of America
Mycological Society of America
National Association for Research in Science Teaching
National Association of Geology Teachers
National Council for Geographic Education
National Council of Teachers of Mathematics
National Science Teachers Association
Paleontological Society
Parapsychological Association
Population Association of America
Society for Economic Botany
Society for Industrial and Applied Mathematics
Society for the Study of Evolution
Society for the History of Technology
Society for the Study of Social Biology
Society of Economic Paleontologists and Mineralogists
Society of General Physiologists
Society of Protozoologists
Society of Systematic Zoology
Speech Communication Association
Western Society of Naturalists

*These societies neither subscribe to rules of another professional association nor provided evidence that their members subscribe to those of another professional body.

Appendix G

Societies Subscribing to Ethical Rules Adopted by Another Society

Subscribe to the Code of the Engineers' Council for Professional Development*:

American Institute of Industrial Engineers**
American Society for Engineering Education
American Society of Agricultural Engineers
American Society of Civil Engineers
American Society of Mechanical Engineers
Society of Manufacturing Engineers

Subscribe to the Code of the American Medical Association:

American Association of Pathologists
American College of Gastroenterology
American Psychiatric Association **
Association of Clinical Scientists

Subscribe to the Code of the American Psychological Association:

Midwestern Psychological Association

Subscribe to the Declaration of Helsinki of the World Medical Association:

American Physiological Society**

Subscribe to the Code of the American Astronomical Society***:

Astronomical Society of the Pacific

Subscribe to the Code of the American Anthropological Association:

American Association of Physical Anthropologists
American Ethnological Society

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*The Engineers' Council for Professional Development has been reorganized as the Accreditation Board of Engineering and Technology, effective January 1, 1980.

**Also have adopted rules or profession-specific annotations of their own.

***The Society, however, reports that it has no formal code.

Subscribe to the Code of the American Association of Petroleum Geologists:

Geological Society of America

Subscribe to the Guidelines to Professional Employment for Engineers and Scientists:

Optical Society of America

Appendix H

Societies Whose Members Subscribe to Ethical Rules Adopted by Their Primary Profession

Academy of Psychosomatic Medicine
American College of Chest Physicians
American Nuclear Society
American Society for Aesthetics
American Society of Clinical Hypnosis
American Vacuum Society
Association for the Study of Man-Environment Relations
Association for Women in Science
Behavior Genetics Association
Biofeedback Society of America
History of Science Society
Institute on Religion in an Age of Science
Marine Technology Society
Pattern Recognition Society
Potato Association of America
Society for Environmental Geochemistry and Health
Society for Social Studies of Science
Society for the Scientific Study of Religion
Volunteers in Technical Assistance

Appendix I

Societies Considering the Adoption of Ethical Rules

American Association for Dental Research
American Folklore Society
American Library Association
American Society for Pharmacology and Experimental Therapeutics
American Society of Ichthyologists and Herpetologists
American Statistical Association
Animal Behavior Society
Biophysical Society
Human Factors Society
Linguistic Society of America
Parapsychological Association
Potato Association of America

Appendix J

Classification Scheme for Ethical Statements*

I. Member Directed

A. The members' conduct and comportment as professionals.
B. The rights and privileges of members.

II. Profession Directed

A. Members' responsibility to colleagues.
B. Members' responsibility to the profession.

III. Employer/Sponsor Directed

A. Members' responsibility to employers.
B. Members' responsibility to sponsors, i.e., those who finance their research/services through contracts, grants, or consulting agreements.

IV. Client Directed**

Members' responsibility to clients, employees, patients, research subjects (animal or human), or students.

V. Society Directed

Members' responsibility to the community in which they live and work or to society in general.

VI. Other Directed

The responsibility of others affected by, affecting, or concerned with the professional activities of members.

VII. General

Statements that are either so broad as to resist classification into a single category or substantively different from those classified into the other categories.

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* The number in parenthese after each rule represents the number of different statements in which the rule appeared. Not all similar rules were identically phrased in the various statements: consequently, some editorial discretion was used in preparing the list.

** We adopt the traditional meaning of the term "client": a person (or other being) under the supervision or protection of another.

I. Member Directed

A. The members' conduct and comportment as professional.

1. Members shall avoid and/or discourage sensational, exaggerated, false, and unwarranted statements. (21)

2. Members shall not give a professional opinion, make a report, or give legal testimony without being as thoroughly informed as possible. (9)

3. Members shall not advertise their work or accomplishments in a self-laudatory, misleading, or unduly conspicuous manner. (18)

4. Members shall not advertise or promote any professional product for personal profit. (6)

5. Members shall not grant use of their name for advertisement or promotion for the sale of a product that is dangerous, incompatible with professional standards, or not of demonstrated usefulness or value. (3)

6. Members shall strive to maintain an appropriate level of professional competence. (24)

7. Members shall not engage in fee splitting and/or rebating in the provision of professional services. (8)

8. Members shall not undertake any assignment unless competent to do so. (14)

9. Members shall present their credentials in an honest and open fashion. (7)

10. Artifacts or specimens shall not be bought and sold or collected solely for display. (2)

11. The conduct of members in a second profession or business arrangement shall not place them in a position where they violate professional ethics standards. (5)

12. A member's professional responsibility shall take precedence over personal interests. (12)

13. Members shall not involve themselves in or permit use of their work for any unsound or illegitimate activity. (8)

14. Members must not use their professional role as a cover to obtain information for other than professional purposes. (2)

15. Members should not solicit patients/clients and should not compensate others in return for professional publicity or securing clients. (4)

16. Members should recognize that each individual is different from all other individuals and should be tolerant of and responsive to those differences. (1)

17. Members should make available to patients and colleagues, as well as to physicians, to other qualified professional persons, and to students, the benefits of their professional attainments. (1)

18. Members shall not use any unfair, improper, or questionable methods of securing professional work or advancement. (1)

19. The professional should only sign or seal plans or specifications prepared by himself or others under his supervision, or those that he has reviewed and checked personally. (1)

20. Members shall refuse to carry out orders of referring practitioners when requested treatment is inadvisable or contraindicated. (1)

21. Members shall maintain adequate records of professional services rendered. (1)

22. Members should not communicate their findings secretly to some and withhold them from others. (1)

23. Members shall avoid professional contact with a member known to engage in unethical practice. (5)

24. Members shall expose to authorities other members who engage in unethical, illegal, or unfair practice. (11)

25. Members shall not delegate to a less qualified person any service which requires professional skill, knowledge, and judgment. (3)

26. Treatment or research should be founded on a scientific basis. (8)

27. Members should not solicit or accept a contract from a government body on which an employee of their organization serves as a member. (2)

28. Members should actively participate in performance reviews. (2)

29. Members should strive to foster a stimulating and productive work atmosphere. (2)

30. Members should use a period of enforced work stoppage occuring on the premises in a constructive and professional manner. (1)

31. Members shall make fair comparisons of their products with products of other suppliers when required by their duties to make comparisons. (1)

32. When in public service as advisors or employees, members should not participate in considerations or actions with respect to services provided by them or their organization in private practice. (1)

33. While in a salaried position, a member should accept part-time work only at a salary not less than that recognized as standard in the area. (1)

34. Members shall preface public statements by clearly indicating on whose behalf they are made. (8)

35. Honesty, integrity, loyalty, fairness, impartiality, candor, fidelity to trust, and inviolability of confidence are incumbent upon every member. (1)

36. Members shall not falsely imply sponsorship or certification of products, services, or publications. (1)

37. Members should neither give nor accept payment or services of more than nominal value to or from those having business relations with their employers. (7)

38. Members shall establish reasonable fees for services rendered. (6)

39. When the patient's interest conflicts with community welfare, the physician must weigh the consequences and arrive at a judgment based on all considerations. (1)

40. Each member shall be guided by the highest standards of business ethics, personal honor, and professional conduct. (1)

B. The rights and privileges of members.

1. Members are entitled to be informed by editors of a publication decision within two to three months. (1)

2. Members are entitled to be informed by employing institutions of the status of their job candidacy. (1)

3. The consent of authors should be obtained before publishing previously copyrighted work and the author is entitled to an appropriate fee. (1)

4. Members should have freedom to participate in political affairs. (1)

5. An engineer is entitled to make engineering comparisons of his product with products by other suppliers. (1)

6. A member is entitled to review and evaluate the work of other members when so required by his/her employment duties. (1)

7. Members are entitled to have their scientific performance judged by a scientific peer. (1)

8. All work and results accomplished by the scientist outside of the field for which he was employed or retained are the property of the scientist. (1)

9. If a scientist uses his own knowledge or information which is considered public property, then the results in the form of designs, plans, inventions, processes, etc., remain the property of the scientist. (1)

10. Members are entitled to fair compensation for work performed. (1)

11. Member-employers must not be required to join a labor organization as a condition of continued employment. (1)

12. When disclosure of confidences is required by law, members have a right to raise the question of adequate need for disclosure. (1)

13. In the treatment of the sick, the physician must be free to use a new therapeutic measure, if in his/her judgment it offers the hope of saving life, reestablishing health or alleviating suffering. (3)

14. The professional is the sole arbiter as to ways in which he/she may earn or dispose of his/her income, without duress, consistent with the law and professional ethics. (2)

15. Physicians have the right to accept or reject any patient, except in emergency situations. (4)

16. Researchers have the right to observe proper standards of scientific reporting without interference. (2)

17. The principles of academic freedom must be safeguarded and are not negotiable. (3)

18. Professionals are entitled to be informed of their working conditions and employment practices at the time an employment offer is made. (3)

19. Members are entitled to equitable compensation if an employer is unable to honor a job offer. (2)

20. As a member of the community, the professional has the rights and obligations of any citizen. (2)

21. Members are entitled to a safe and efficient work environment. (2)

22. Members are entitled to reasonable compensated leaves of absence for professional study. (2)

23. Members should be given the opportunity to publish work in scientific journals and to present findings at scientific meetings. (3)

24. Professionals should be free to participate in professional and scientific society affairs. (2)

25. No member should be terminated from employment for inadequate performance without documented evidence and review. (3)

26. Academic members should be accorded full academic due process if employment is terminated, regardless of tenure status. (2)

27. The privilege of healing the sick is a right granted only to those properly qualified and licensed. It is a privilege belonging to the medical profession. (1)

28. A physician has the right to refer a patient to the specialist best qualified to serve that patient. (1)

29. Any physician so certified and qualified has the right to apply for professional staff membership in any hospital. (1)

30. Physicians should have the privilege of admitting patients into the hospital in order to perform diagnostic tests and/or treatment. (1)

31. Members may endorse equipment to other health professionals for remuneration or consideration. (1)

32. Members may enter into agreements with organizations to provide services. (1)

33. Drugs or remedies may be dispensed, supplied, or prescribed by a psychoanalyst, provided he/she is a licensed physician. (1)

34. Researchers have the right to pursue any area of research. (1)

35. A member may provide expert testimony when it is essential to a just and fair hearing. (1)

36. Members may properly participate in a program of health education of the public involving the media. (1)

37. Members are entitled to know if letters of recommendation written by them will be held confidential. The member has the option of refusing to write a letter. (1)

II. Profession Directed

A. Members' responsibility to colleagues.

1. Members shall not falsely or maliciously attempt to injure the reputation or business of another and shall not compete unfairly with fellow professionals. (13)

2. Members shall give proper credit to the work of others. (20)

3. Members shall cooperate with and have respect for other members and shall assist with their professional development. (21)

4. Members shall not discriminate against other professionals on grounds unrelated to professional competence. (5)

5. Members shall refrain from or exercise due care in criticizing another professional's work in public, recognizing that the Association provides a proper forum for technical discussion and criticism. (2)

6. Members shall uphold professional standards of ethics and counsel other members to do so. (6)

7. Members shall disseminate knowledge and share experience with other colleagues and be honest, realistic, and clear in presenting findings. (19)

B. Members' responsibility to the profession.

1. Members shall disseminate information about the profession and its work. (10)

2. Members shall advance the dignity and prestige of the profession and participate in the society's activities. (20)

3. Members shall accept responsibility for working toward creation and maintenance of a favorable climate for professional activity consistent with the ethics of the profession. (3)

4. Members shall uphold fair and adequate compensation and standards of employment for professional work. (4)

III. Employer/Sponsor Directed

A. Members' responsibility to employers.

1. Members shall perform services with unqualified loyalty to the employer. (3)

2. Members shall protect the interests of their employers. (11) Conflicts between obligations to employers and professional ethics should be resolved. (7)

3. Members should disclose to employers/contractors the existence of any interests they have which may bear on their employment. (11)

4. Employer's confidential information should not be used to the detriment of the employer. (3)

5. Members should not divulge information given to them in confidence without the employer's consent. (16)

6. Members should not accept employment by or compensation from another party if in conflict with the interests of the member's current employer. (13)

7. Members should not seek to profit from information or materials gained during employment unless consented to by the employer. (6)

8. Members should advise employers to engage other experts whenever in the employer's best interests. (9)

9. Members in competition (including bidding) for providing services will encourage prospective employers to base their selection on a comparison of qualifications and negotiation of fee or salary. (3)

10. Members should advise employers of possible consequences of the work in which they are involved. (10)

11. Members should make a full disclosure of their qualifications to employers before undertaking specific work. (4)

12. Members should report to their employers any matter which they believe represents a contravention of public law, regulations, health or safety, or professional ethics. (7)

13. Members shall not participate in strikes, picket lines, or other collective coercive action. (1)

B. Members' responsibility to sponsors.

1. Members shall properly acknowledge the contribution of sponsoring agencies to research/service performed. (1)

2. Members should clarify in advance with employers or sponsors expectations for sharing and utilizing data and/or the ownership of materials or patents. (9)

IV. Client Directed

A. Clients (general).

1. Members should explain the nature and purpose of their services without misleading clients. (2)

2. Members should terminate a relationship when it is reasonably clear that the consumer is not benefiting. (3)

3. Members should refer consumers to alternative sources of help when it is in their best interests. (2)

4. Confidences should not be revealed unless there is a clear and imminent danger to an individual or society. (2)

5. In providing services, members shall avoid action that will injure or violate the rights of clients. (3)

6. Members should not discriminate against clients on the basis of race, color, religion, age, sex, or national ancestry. (4)

7. Members should maximize benefits for their clients. (4)

8. Members should avoid conflicts of interest in treating/serving clients. (1)

9. Members are responsible for assisting clients in finding needed services when payment of standard fee would be a hardship. (1)

10. Products dispensed to clients must be evaluated to determine effectiveness. (1)

11. Members should assist clients in protecting their property from damage. (1)

12. Members shall protect clients from the misuse of information collected about them. (1)

13. Members should remove obsolete information from the client's files. (1)

14. Members shall respect the privacy of their clients. (1)

15. Members shall provide appropriate access to records of persons served professionally. (1)

16. As an employee of an organization providing services or as a provider of services in an organization, a member should seek to effect change within the organization if existing programs are not in their client's best interest. (1)

B. Employees.

1. Members should protect subordinates from physical and mental harm. (2)

2. Members should provide suitable working conditions and opportunities for employees. (6)

3. Members shall compensate employees fairly, both financially and by acknowledgement of their scientific contributions. (3)

4. Members should provide prospective employees and current employees with up-to-date information on working conditions and employment status. (2)

5. Members should provide timely evaluations of employees. (1)

6. Members should not require anyone under their supervision to engage in any practice that violates professional ethics. (1)

7. Members should not accept compensation from persons under their supervision. (1)

C. Patients.

1. Physicians shall respect the privacy and dignity (informed consent) of the patient. (3)

2. Members should seek consultation upon patient request or when to the benefit of the patient. (4)

3. Physicians should not suggest the purchase of services or material items unless in the patient's best interest. (6)

4. The duty of the physician is to secure maximum benefit for the patient. (5)

5. Having undertaken care of the patient, the physician may discontinue his services only after giving adequate notice. (3)

6. In emergencies, physicians should render service to the best of their ability. (4)

7. Auxiliary personnel should be adequately supervised in treating patients. (4)

8. Confidential information should not be revealed without the patient's consent. (4)

9. Economic gain shall always be subordinated to the needs of the patient. (3)

10. Members shall enter only into agreements with other service providers that guarantee that the primary consideration will be service to the patient. (2)

11. Sexual activity with a patient is unethical. If sexual activity between patient and the professional cannot be prevented in the professional relationship, the latter should transfer the patient to a colleague. (3)

12. The physician shall respect the patient's right to terminate his treatment with the physician. (1)

13. If there is evidence of faulty treatment, the welfare of the patient demands that corrective treatment be given. (1)

14. The specialist is obligated to observe a patient's post-treatment condition and to then send the patient to the referring provider for future care. (1)

D. Research subjects (human/animal).

1. Members shall avoid conflicts of interest so that interference with human research participants is minimal. (1)

2. Researchers should remain knowledgeable of relevant government regulations concerning research with humans and animals. (1)

3. Only animals lawfully acquired should be used in research. (1)

4. Investigators should report findings in terms appropriate to the subject's understanding and clear up any misconceptions. (1)

5. Caution should be exercised in advising participants on the basis of sensitive data. (1)

6. If an experimental treatment is believed to be of benefit to participants, then control groups should be offered other beneficial treatment, if available, instead of no treatment. (1)

7. When deception or concealment is necessary, the investigator should ensure as soon as possible that the subjects understand the reasons for such action. (2)

8. Investigators have a special obligation to respect the participant's freedom to decline to participate in or to withdraw from an experiment. (3)

9. Investigators are obliged to protect research participants from physical or mental discomfort, harm and danger. (7/2)

10. Researchers are obligated to detect and correct any adverse consequences that affect participants. (3)

11. The rights of research subjects must be protected by investigators. (6)

12. Where scientific or human values justify delaying or withholding information, investigators have a special responsibility to prevent damaging consequences from affecting participants. (2)

13. Solicitations of research subjects should make clear the obligation, rewards, and consequences to research subjects for their participation. (4)

14. Information gained from research participants shall be held in confidence unless the subject's consent to release information is obtained. (5)

15. When in doubt regarding research ethics, investigators should seek advice from knowledgeable colleagues. (3)

16. Investigators are responsible for the proper treatment of subjects by collaborators, assistants, students, and employees. (3/2)

17. Informed consent of participants is required except when study methods require concealment or deception. (3)

18. When informed consent is not possible, then the consent of a representative of the subject should be obtained. (2)

19. Human research should not be conducted unless the importance of the objective is in proportion to the risk to the subject. (1)

20. Investigations involving drugs should be conducted only in settings which provide appropriate safeguards for the participant. (1)

21. In seeking access to institutional records, investigators should obtain the consent of authorities who bear some degree of responsibility for giving consent for subjects. (1)

22. Physicians can combine research with professional care only to the extent that the research is justified by its therapeutic value for the patient. (1)

23. In conducting research, the ethical principles should apply to research in any area either within or outside the United States. (1)

24. Members should not exploit individual informants for personal gain. Fair return should be given them for all services. (1)

E. Students.

1. Statements in catalogs, course outlines, and graduate requirements should be clear and not misleading. (3)

2. As teachers, members should sensitize students to the rights of research subjects. (3)

3. Members should present information fully, accurately, and objectively. (2)

4. Members should provide timely and accurate evaluations of students. (3)

5. Members shall not mislead students concerning their limitations, training, or abilities. (2)

6. Exploitation of students is to be avoided. (3)

7. Members should encourage and assist students in the free pursuit of learning. (3)

8. Members shall respect the confidential nature of the teacher-student relationship. (1)

9. Members should assist students in securing professional employment upon completion of their studies. (1)

V. Society Directed

1. Members should speak out against abuses in areas affecting the public interest. (6)

2. Members should safeguard the public against members deficient in moral character or professional competence. They should expose illegal or unethical conduct. (7)

3. Members should observe all laws and cooperate with legal authorities. (7)

4. Members shall strive to protect the safety, health, and welfare of the public. (11)

5. Members shall use their knowledge and skill for the advancement of human welfare and contribute to public education and charitable and other non-profit organizations. (21)

6. Members should strive to meet the needs of the disadvantaged for advice. (1)

7. Members should donate a portion of their services for no pay. (1)

VI. Other Directed

1. Institutions employing members should abolish nepotism rules. (1)

2. Institutions employing members should make more flexible use of part-time positions for fully qualified professionals. (1)

3. The expressed consent of member-applicants should be obtained before prospective employers communicate with a current employer. (1)

4. Professional employees should not be barred from seeking other employment or establishing independent enterprises by agreements among employers or between employer and employee. (1)

5. A student of psychology who assumes the role of a psychologist shall be considered a psychologist for the purpose of this code of ethics. (1)

6. Funding agencies should include in grants a stipulation that data gathered under the grants be made available to scholars at cost after a specific time. (1)

7. In connection with the appraisal of manuscripts, editors should take all reasonable precautions to avoid revealing the names of the authors and the reader to each other. (1)

8. It is highly unethical for any candidate for public office to trade on the credibility normally attached to objective scholarly research in the academic world. (1)

VII. General

1. Offers, acceptance, and/or termination of employment should be handled with mutual respect for the interests of each party. (6)

2. The Society and its members have a continuing responsibility to question, amend, and revise these standards. (1)

3. Every profession receives from society the right to regulate itself and to determine and judge its own members. (1)

Appendix K

AAAS Workshop on Professional Ethics: Participant List

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AAAS Workshop on Professional Ethics:
The Role of Scientific and Engineering Societies

November 15-16, 1979

Marriott Hotel
Dulles International Airport
Reston, Virginia

Agenda

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Thursday
November 15

8:30 - 9:00 A. M.	Registration
9:00 - 9:30 A. M.	Opening Plenary Session

Speakers

John T. Edsall, Harvard University
(Chairman, AAAS Committee on Scientific Freedom and Responsibility)
"Welcome and Introduction"

Rosemary Chalk, Staff Officer
AAAS Committee on Scientific Freedom and Responsibility
"Goals and Purposes of the Workshop"

9:30 - 11:00 A. M.	Plenary Session A: Survey Discussion (Rosemary Chalk, Moderator)

Speaker

Mark S. Frankel, Wayne State University
"Survey Findings and Interpretation"

Comments

Milton Lunch, National Society of Professional Engineers
Bernard Barber, Columbia University
Judith Swazey, Medicine in the Public Interest

11:00 - 11:15 A. M.	Coffee Break

11:15 - 12:45 P. M. Plenary Discussion

12:45 - 2:15 P. M. Lunch

Speaker

Dorothy Nelkin, Program in Science, Technology and Society, Cornell University
"Emerging Public Service Roles of Scientists and Engineers"

2:30 - 4:00 P. M. Plenary Session B: Changing Attitudes Towards Professional Rights and Obligations
(Mark S. Frankel, Moderator)

Speakers

John Ladd, Brown University
"Philosophical and Historical Trends in Professional Self-Regulation"

Jeremy J. Stone, Federation of American Scientists
"The Social Responsibility of the Professions: A Public Interest Perspective"

Harold Orlans, National Academy of Public Administration
"Changing Attitudes toward the Rights and Obligations of Social Scientists"

Robert Baum, Rensselaer Polytechnic Institute
"Proposed Principles of Scientific Freedom and Responsibility"

4:00 - 4:15 P. M. Coffee Break

4:15 - 5:45 P. M. Discussion Groups: Session 1

6:00 - 7:00 P. M. Cocktail Reception

7:00 - P. M. Dinner

Speaker

Edmund Pellegrino, President
The Catholic University of America
"The Role of the Professional Society: Future Directions"

Friday
November 16

9:00 - 9:30 A. M. Opening Plenary Session

Speakers

Kenneth Boulding, University of Colorado
(AAAS President)
"Welcome and Introduction"

Rosemary Chalk
"After the Workshop: Next Steps"

9:30 - 11:00 A. M. Concurrent Plenary Sessions

Plenary Session C: Ethical Issues in the Professions
(Mark S. Frankel, Moderator)

Speakers

Joan Sieber, California State University
"Social and Behavioral Sciences Issues"

Steven Unger, Columbia University
"Engineering Issues"

Leroy Walters, Kennedy Institute
"Bio-Medicine and Health Sciences Issues"

Plenary Session D: Ethical Issues in the Development and Use of Scientific and Technical Knowledge
(Rosemary Chalk, Moderator)

Speakers

James D. Carroll, Maxwell School,
Syracuse University
"Ethical Issues in Academic Research and Teaching"

Warren Niederhauser, Rohm and Haas Company
"Ethical Issues in Private Industry"

David Reich, Office of Government Ethics
"Ethical Issues Affecting Government Employees"

11:00 - 11:15 A. M. Coffee Break

11:15 - 12:00 Noon Discussion Groups: Session 2

12:15 - 1:45 P.M. Lunch

Speaker

Elizabeth Rindskopf, Federal Trade Commission
"The Government's Role in Regulating the Profession"

2:00 - 3:00 P. M. Discussion Groups: Session 3

3:15 - 4:00 P. M. Plenary Discussion: Discussion Groups Reports

4:00 - 4:15 P. M. Coffee Break

4:15 - 5:00 P. M. Final Plenary Discussion

5:00 - P. M. Adjournment

Appendix L

(The following papers and abstracts were prepared for the AAAS Workshop on Professional Ethics, November 15-16, 1979. Some of the material has been slightly edited for inclusion in this report.)

The Quest for a Code of Professional Ethics: An Intellectual and Moral Confusion

John Ladd
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Brown University

My role as a philosopher is to act as a gadfly. If this were Athens in the fifth century B.C. you would probably throw me in prison for what I shall say, and I would be promptly condemned to death for attacking your idols. But you can't do that in this day and age; you can't even ask for your money back, since I am not being paid. All that you can do is to throw eggs at me or simply walk out!

My theme is stated in the title: it is that the whole notion of an organized professional ethics is an absurdity--intellectual and moral. Furthermore, I shall argue that there are few positive benefits to be derived from having a code and the possibility of mischievous side effects of adopting a code is substantial. Unfortunately, in the time allotted to me I can only summarize what I have to say on this topic.

(1) To begin with, ethics itself is basically an open-ended, reflective and critical intellectual activity. It is essentially problematic and controversial, both as far as its principles are concerned and in its application. Ethics consists of issues to be examined, explored, discussed, deliberated, and argued. Ethical principles can be established only as a result of deliberation and argumentation. These principles are not the kind of thing that can be settled by fiat, by agreement or by authority. To assume that they can be is to confuse ethics with law-making, rule-making, policy-making and other kinds of decision-making. It follows that, ethical principles, as such, cannot be established by associations, organizations, or by a consensus of their members. To speak of codifying ethics, therefore, makes no more sense than to speak of codifying medicine, anthropology or architecture.

(2) Even if substantial agreement could be reached on ethical principles and they could be set out in a code, the attempt to impose such principles on others in the guise of ethics contradicts the notion of ethics itself, which presumes that persons are autonomous moral agents. In Kant's terms, such an attempt makes ethics heteronomous; it confuses ethics with some kind of externally imposed set of rules such as a code of law, which, indeed, is heteronomous. To put the point in more popular language: ethics must, by its very nature, be self-directed rather than other-directed.

(3) Thus, in attaching disciplinary procedures, methods of adjudication and sanctions, formal and informal, to the principles that one calls "ethical" one automatically converts them into legal rules or some other kind of authoritative rules of conduct such as the bylaws of an organization, regulations promulgated by an official, club rules, rules of etiquette, or other sorts of social standards of conduct. To label such conventions, rules and standards "ethical" simply reflects an intellectual confusion about the status and function of these conventions, rules and standards. Historically, it should be noted that the term "ethical" was introduced merely to indicate that the code of the Royal College of Physicians was not to be construed as a criminal code (i.e. a legal code). Here "ethical" means simply non-legal.

(4) That is not to say that ethics has no relevance for projects involving the creation, certification and enforcement of rules of conduct for members of certain groups. But logically it has the same kind of relevance that it has for the law. As with law, its role in connection with these projects is to appraise, criticize and perhaps even defend (or condemn) the projects themselves, the rules, regulations and procedures they prescribe, and the social and political goals and institutions they represent. But although ethics can be used to judge or evaluate a disciplinary code, penal code, code of honor or what goes by the name of a "code of ethics," it cannot be identified with any of these, for the reasons that have already been mentioned.

Some General Comments on Professionalism and Ethics

(5) Being a professional does not automatically make a person an expert in ethics, even in the ethics of that person's own particular profession-unless of course we decide to call the 'club rules' of a profession its ethics. The reason for this is that there are no experts in ethics in the sense of expert in which professionals have a special expertise that others do not share. As Plato pointed out long ago in the Protagoras, knowledge of virtue is not like the technical knowledge that is possessed by an architect or shipbuilder. In a sense, everyone is, or ought to be, a teacher of virtue; there are no professional qualifications that are necessary for doing ethics.

(6) Moreover, there is no special ethics belonging to professionals. Professionals are not, simply because they are professionals, exempt from the common obligations, duties and responsibilities that are binding on ordinary people. They do not have a special moral status that allows them to do things that no one else can. Doctors have no special right to be rude, to deceive, or to order people around like children, etc. Likewise, lawyers do not have a special right to bend the law to help their clients, to bully witnesses, or to be cruel and brutal-simply because they think that it is in the interests of their client. Professional codes cannot, therefore, confer such rights and immunities; for there is no such thing as professional ethical immunity.

(7) We might ask: do professionals, by virtue of their special professional status, have special duties and obligations over and above those they would have as ordinary people? Before we can answer this question, we must first decide what is meant by the terms "profession" and "professional," which are very loose terms that are used as labels for a variety of different occupational categories. The distinctive element in professionalism is generally held to be that professionals have undergone advanced, specialized training and that they exercise control over the nature of their job and the services they provide. In addition, the older professions, lawyers, physicians, professors and ministers typically have clients to whom they provide services as individuals. (I use the term "client" generically so as to include patients, students, and parishioners.) When professionals have individual clients, new moral relationships are created that demand special types of trust and loyalty.

Thus, in order to answer the question, we need to examine the context under which special duties and obligations of professionals might arise.

(8) In discussing specific ethical issues relating to the professions, it is convenient to divide them into issues of macro-ethics and micro-ethics. The former comprise what might be called collective or social problems, that is, problems confronting members of a profession as a group in their relation to society; the latter, issues of micro-ethics, are concerned with moral aspects of personal relationships between individual professionals and other individuals who are their clients, their colleagues and their employers. Clearly the particulars in both kinds of ethics vary considerably from one profession to another. I shall make only two general comments.

(9) Micro-ethical issues concern the personal relationships between individuals. Many of these issues simply involve the application of ordinary notions of honesty, decency, civility, humanity, considerateness, respect and responsibility. Therefore, it should not be necessary to devise a special code to tell professionals that they ought to refrain from cheating and lying, or to make them treat their clients (and patients) with respect, or to tell them that they ought to ask for informed consent for invasive actions. It is a common mistake to assume that all the extra-legal norms and conventions governing professional relationships have a moral status, for every profession has norms and conventions that have as little to do with morality as the ceremonial dress and titles that are customarily associated with the older professions.

(10) The macro-ethical problems in professionalism are more problematic and controversial. What are the social responsibilities of professionals as a group? What can and should they do to influence social policy? Here, I submit, the issue is not one of professional roles, but of professional power. For professionals as a group have a great deal of power; and power begets responsibility. Physicians as a group can, for instance, exercise a great deal of influence on the quality and cost of health care; and lawyers can have a great deal of influence on how the law is made and administered, etc.

(11) Socalled "codes of professional ethics" have nothing to contribute either to micro-ethics or to macro-ethics as just outlined. It should also be obvious that they do not fit under either of these two categories. Any association, including a professional association, can, of course, adopt a code of conduct for its members and lay down disciplinary procedures and sanctions to enforce conformity with its rules. But to call such a disciplinary code a code of ethics is at once pretentious and sanctimonious. Even worse, it is to make a false and misleading claim, namely, that the profession in question has the authority or special competence to create an ethics, that it is able authoritatively to set forth what the principles of ethics are, and that it has its own brand of ethics that it can impose on its members and on society.

I have briefly stated the case against taking a code of professional ethics to be a serious ethical enterprise. It might be objected, however, that I have neglected to recognize some of the benefits that come from having professional codes of ethics. In order to discuss these possible benefits, I shall first examine what some of the objectives of codes of ethics might be, then I shall consider some possible benefits of having a code, and, finally, I shall point out some of the mischievous aspect of codes.

Objectives of Codes of Professional "Ethics"

In order to be crystal clear about the purposes and objectives of a code, we must begin by asking: to whom is the code addressed? Although ostensibly codes of ethics are addressed to the members of the profession, their true purposes and objectives are sometimes easier to ascertain if we recognize that codes are in fact often directed at other addressees than members. Accordingly,

the real addressees might be any of the following: (a) members of the profession, (b) clients or buyers of the professional services, (c) other agents dealing with professionals, such as government or private institutions like universities or hospitals, or (d) the public at large. With this in mind, let us examine some possible objectives.

First, the objective of a professional code might be "inspirational," that is, it might be used to inspire members to be more "ethical" in their conduct. The assumption on which this objective is premised is that professionals are somehow likely to be amoral or submoral, perhaps, as the result of becoming professionals, and so it is necessary to exhort them to be moral, e.g. to be honest. I suppose there is nothing objectionable to having a code for this reason; it would be something like the Boy Scout's Code of Honor, something to frame and hang in one's office. I have severe reservations, however, about whether a code is really needed for this purpose and whether it will do any good; for those to whom it is addressed and who need it the most will not adhere to it anyway, and the rest of the good people in the profession will not need it because they already know what they ought to do. For this reason, many respectable members of a profession regard its code as a joke and as something not to be taken seriously. (Incidentally, for much the same kind of reasons as those just given, there are no professional codes in the academic or clerical professions.)

A second objective might be to alert professionals to the moral aspects of their work that they might have overlooked. In jargon, it might serve to sensitize them or to raise their consciousness. This, of course, is a worthy goal-it is the goal of moral education. Morality, after all, is not just a matter of doing or not doing, but also a matter of feeling and thinking. But, here again, it is doubtful that it is possible make people have the right feelings or think rightly through enacting a code. A code is hardly the best means for teaching morality.

Thirdly, a code might, as it was traditionally, be a disciplinary code or a "penal" code used to enforce certain rules of the profession on its members in order to defend the integrity of the professionl and to protect its professional standards. This kind of function is often referred to as "self-policing." It is unlikely, however, that the kind of disciplining that is in question here could be handled in a code of ethics, a code that would set forth in detail criteria for determining malpractice. On the contrary, the "ethical" code of a profession is usually used to discipline its members for other sorts of 'unethical conduct,' such as stealing a client away from a colleague, for making disparaging remarks about a colleague in public, or for departing from some other sort of norm of the profession. (In the original code of the Royal College of Physicians, members who failed to attend the funeral of a colleague were subject to a fine!) It is clear that when we talk of a disciplinary code, as distinguished from an exhortatory code, a lot of new questions arise that cannot be treated here; for a disciplinary code is quasi-legal in nature, it involves adjudicative organs and processes, and it is usually connected with complicated issues relating to such things as licensing.

A fourth objective of a code might be to offer advice in cases of moral perplexity about what to do: e.g. should one report a colleague for malfeasance? Should one let a severely defective newborn die? If such cases present genuine perplexities, then they cannot and should not be solved by reference to a code. To try to solve them through a code is like trying to do surgery with a carving knife! If it is not a genuine perplexity, then the code would be unnecessary.

A fifth objective of a professional code of ethics is to alert prospective clients and employers to what they may and may not expect by way of service from a member of the profession concerned. The official code of an association, say, of engineers, provides as authoritative statement of what is proper and

what is improper conduct of the professional. Thus, a code serves to protect a professional from improper demands on the part of employer or client, e.g. that he lie about or coverup defective work that constitutes a public hazard. Codes may thus serve to protect 'whistle-blowers.' (The real addressee in this case is the employer or client.)

Secondary Objectives of Codes-Not Always Salutory

I now come to what I shall call "secondary objectives," that is, objectives that one might hesitate always to call "ethical," especially since they often provide an opportunity for abuse.

The first secondary objective is to enhance the image of the profession in the public eye. The code is supposed to communicate to the general public (the addressee) the idea that the members of the profession concerned are service oriented and that the interests of the client are always given first place over the interests of the professional himself. Because they have a code they may be expected to be trustworthy.

Another secondary objective of a code is to protect the monopoly of the profession in question. Historically, this appears to have been the principal objective of a socalled code of ethics, e.g. Percival's code of medical ethics. Its aim is to exclude from practice those who are outside the professional in-group and to regulate the conduct of the members of the profession so as to protect it from encroachment from outside. Sometimes this kind of professional monopoly is in the public interest and often it is not.

Another secondary objective of professional codes of ethics, mentioned in some of the literature, is that having a code serves as a status symbol; one of the credentials for an occupation to be considered a profession is that it have a code of ethics. If you want to make your occupation a profession, then you must frame a code of ethics for it: so there are codes for real estate agents, insurance agents, used car dealers, electricians, barbers, etc., and these codes serve, at least in the eyes of some, to raise their members to the social status of lawyers and doctors.

Mischievous Side-effects of Codes of Ethics

I now want to call attention to some of the mischievous side-effects of adopting a code of ethics:

The first and most obvious bit of mischief, is that having a code will give a sense of complaceny to professionals about their conduct. "We have a code of ethics," they will say, "So everything we do is ethical." Inasmuch as a code, of necessity, prescribes what is minimal, a professional may be encouraged by the code to deliver what is minimal rather than the best that he can do. "I did everything that the code requires..."

Even more mischievous than complacency and the consequent self-congratulation, is the fact that a code of ethics can be used as a cover-up for what might be called basically "unethical" or "irresponsible" conduct.

Perhaps the most mischievous side-effect of codes of ethics is that they tend to divert attention from the macro-ethical problems of a profession to its micro-ethical problems. There is a lot of talk about whistle-blowing. But it concerns individuals almost exclusively. What is really needed is a thorough scrutiny of professions as collective bodies, of their role in society and their effect on the public interest. What role should the professions play in determining the use of technology, its development and expansion, and the distribution of the costs (e.g. disposition of toxic wastes) as well as the benefits of technology? What is the significance of professionalism from the moral point of view for democracy, social equality, liberty and justice? There are lots of ethical problems to be dealt with. To concentrate on codes of

ethics as if they represented the real ethical problems connected with professionalism is to capitulate to struthianism (from the Greek word struthos-ostrich).

One final objection to codes that needs to be mentioned is that they inevitably represent what John Stuart Mill called the "tyranny of the majority" or, if not that, the "tyranny of the establishment." They serve to and are designed to discourage if not suppress the dissenter, the innovator, the critic.

By way of conclusion, let me say a few words about what an association of professionals can do about ethics. On theoretical grounds, I have argued that it cannot codify an ethics and it cannot authoritatively establish ethical principles or prescribed guidelines for the conduct of its members-as if it were creating an ethics! But there is still much that associations can do to promote further understanding of and sensitivity to ethical issues connected with professional activities. For example, they can fill a very useful educational function by encouraging their members to participate in extended discussions of issues of both micro-ethics and macro-ethics, e.g. questions about responsibility; for these issues obviously need to be examined and discussed much more extensively than they are at present-especially by those who are in a position to do something about them.

Ethical Issues Facing Scientists in the Public Sector

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Scientists today serve as advisors to policy makers, consultants to private enterprise, expert witnesses to courts, technical administrators, social critics, popularizers and advocates for community groups. They serve as a political resource, called upon to assure a fair distribution of expertise in controversial policy areas--they act as experts with the responsibility to use their special knowledge in the public interest, to call public attention to the dangers of new technologies and, indeed, to the potential use and consequences of their own research. These multiple professional roles involving public service advocacy present the scientific community with a number of ethical dilemmas, especially as public service engages scientists increasingly in policy disputes.

That scientists have a responsibility for public service is certainly not a new concept. In the early part of the century, geologists, agricultural scientists, biologists and physicists systematically tried to bring their scientific knowledge to bear on improving public policy. After World War II, these efforts took a new and more active turn with the efforts of the atomic scientists to challenge public policy concerning military technology. Disturbed about dangerous military applications, scientists developed their dissent in journals such as the Bulletin of the Atomic Scientists, and they formed new organizations such as the Federation of American Scientists and the Scientists' Institute for Public Information. Using the press and the podium, they informed the public about the implications of atomic energy, hoping thereby to influence government policy.

By the last 1960's, this post-war ethic of social responsibility reached a still more active phase as some scientists organized to oppose the ABM, and others to protest military research in universities. In the political context of this time, a new critical science movement emerged, and this has changed the character of service in the public interest in several important ways. Except for the post-war concern about military applications of science, public service in most policy areas had been defined in terms of contributing scientific knowledge to public affairs. Advisory committees proliferated and scientists developed close relationships with the agencies they advised. Since the late 1960's changing notions of responsibility have rather implied the challenging of public policy in a wide range of areas. Political relationships have evolved from "prudential acquiescense" to overt dissent, as activists in the scientific community have extended their political interests beyond military issues to the environmental and anti-nuclear movements and to questions about biomedical and genetic research. They have critically examined research practices, analyzing the possible risks and abuses of science, and questioning whether some research should be done at all. The recombinant DNA debate, the XYY dispute, the genetics-IQ controversy, the sociobiology debate--all embroiled scientists in public controversy.

The most striking change in the character of public interest science during these years has been its political orientation. The 1940's scientists acted out of personal and moral concerns; today the adversarial nature of many policy areas requires scientists to develop a far more ideological and political orientation. Indeed they have formed what can be called the "scientific movement". Scientists engaged in public advocacy are organized both through "critical science" or "public interest science" groups, and through traditional professional and scientific societies.

Scientists with quite different political orientations identify with this movement. Some are highly critical of established science and technology, seeking basic social and political change. The most visible participants are

"professional activists" who speak out on very diverse science and technology policy issues. While these people are few in number, they count on the support of a much larger group of young scientists who were politicized during the Vietnam War and find these issues an outlet for their political energies.

But most scientists take a more pragmatic and conservative approach to public advocacy, providing information and technical assistance to citizen groups on specific issues. Convinced of the political efficacy of education and information, these public interest scientists are ideologically, direct descendents of the post-war activists, often using the same media (e.g. the Bulletin of the Atomic Scientists) to document their position. However, while scientists in the 1940's went to the public arena as a "reluctant lobby", as if it violated the norms of science, scientists today engage in political activity with verve and enthusiasm. Moreover, these scientists have begun to institutionalize the concept of public advocacy: careers now exist for scientists in public advisory roles, networks of scientists are available to advise citizen groups on particular problems, and even a division of the NSF supports scientists who wish to provide their expertise to citizens. Organizations of advocacy scientists in diverse technical areas have proliferated: The Center for Scientists in the Public Interest, the Union of Concerned Scientists, the Clearing House for Professional Responsibility, Science for the People, Scientific Workers Social Action, Aerospaced, Computer Professionals for Peace, the National Coalition for Responsible Genetic Research--just to name a few.

The trend is not simply American: critical scientists in Great Britain are organized in Health Hazards Advisory Groups and in the British Society for Social Responsibility in Science. In France, GSIEN (Groupe Scientifique de l'Energie Nucleaire) is the equivalent of our Union of Concerned Scientists, and in Holland the Wetenschapswinkels or science shops are well institutionalized as science advisory units for community groups seeking to challenge technological policy.

Tactically, the most striking feature of scientific activism is its public nature, and the willingness of scientists to engage in and indeed to abet political controversy. Clearly scientists often disagree, but their disputes are contained within the scientific community with its well established procedures for collegial review. However, those active in current controversies are rather inclined to use a political forum--the popular press, public testimony, or litigation.

To be sure, the atomic scientists of the 1940's also lobbied, lectured, contacted the press, and wrote popular articles. But they were seeking a public constituency in order to support their concerns about military policy. In contrast, today's activists seek a public constituency in order to increase the accountability of science. While activists in the 1940's fought to isolate research from political control, their recent counterparts want to increase political interaction.

This perspective creates a number of ethical dilemmas. Clearly the public activities of some scientific leaders is perceived as useful for science. But those who challenge existing practices in controversial policy areas--and that is, after all, the essence of public advocacy--face sanctions from their colleagues. Implementing social responsibility implies political activity in a subculture that has long assumed such activity to be destructive of scientific endeavor. Prior to World War II, Bernal observed that "any attempt on the part of the scientist to think for himself outside his own field exposes him to severe sanctions....It is argued that in the interests of science it would be far better for him not to do so." In 1978, the president of a professional society commented, "Science is great because it aggrandizes man. Politics is tawdry because it belittles."

Thus, a major ethical dilemma confronting scientists is their relationship to their discipline and to the norms of scientific behavior. Informing the public about the potentially harmful consequences of science and technology necessarily engages scientists in debate. Political involvement and open indication of disagreement among scientists can destroy the image of neutrality that has justified the autonomy of science. The adversarial mode of political behavior violates the consensual style of science and, in the political imperatives of advocacy, may lead scientists to violate professional standards. For example, is it ethical for scientists to publicize their beliefs about the toxicity of a new chemical or the adequacy of an environmental standard before their findings are submitted to the time-consuming process of professional review? Is it responsible to warn of the potential consequences of research when these are difficult, if not impossible, to anticipate? What degree of certainty must a scientist obtain before alerting the public?

Scientists also confront ethical dilemmas concerning their role with respect to the public. Given the difficulty of formulating a systematic notion of the general welfare or the public interest, how can one establish appropriate standards for public service? How can the exercise of public advocacy be distinguished from efforts to promulgate particular values? Advocacy requires scientists to formulate and define issues and therefore to take a position in an adversarial framework that must opt for the value of one group over another. Finally, as scientists trade on the public image of science or on their own reputations to influence public policy, is this responsibility or the exercise of power and influence? I would argue that the willingness of scientists to engage in public advocacy has increased the power and influence of science by reinforcing the tendency to deal with controversial policies through technical discourse. Scientists may easily become simply another source of manipulation. Indeed, engaging in public service contains an ethical paradox: while intending to inform the public and to ensure a better distribution of expertise, scientists may simply perpetuate philanthropic relationships between science and the citizen, and establish themselves as the guardian of truth.

The increased engagement of scientists in public service poses special problems for scientific societies. Conceived more to regulate the standards of science than the activities of their members, they have not established an effective institutional ethic governing external relationships. In this sense they are very different from the guild-type professional associations (e.g. in medicine) that regulate professional practice activities. To the extent that scientific societies become engaged in public service they must face the basic contradiction between the cognitive and pragmatic dimensions of science. Is science the pursuit of truth or the pursuit of useful knowledge? Is it to be defined in terms of a carefully disciplined process or as a professional public service activity? Many of their members have made a choice--extending the scope of their activities to address problems of immediate political or economic significance. But public service has its costs, for as scientists move from the cloister to the market, they may also give up many of the privileges of the gown.

Ethical Issues in Private Industry

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The American Chemical Society has developed a one page list of ethical standards in The Chemist's Creed (1965) which emphasizes truth, fairness, and integrity in the chemist's dealings with others. In recent years, somewhat more attention has been given to Professional Employment Guidelines (1978). While this covers both obligations of the chemist and his employer, the emphasis is on the latter, and particularly on guidelines for termination conditions in case of a general layoff. Chemical and Engineering News periodically lists those companies which have had layoffs, and indicates which of the guidelines each company has violated. The Society also has developed a procedure for expelling unethical members, and has used it twice in the last 15 years. It also provides advice and help to members who have been treated unfairly by their employers.

An ethical and legal issue which has received great attention in recent years is the question of bringing forth new technology without unreasonable hazard to employees and the public. Some cases are clear and the guilty have been punished. But often we cannot tell whether the benefits of a chemical more than outweigh its hazards. Some scientists have been fired for publicizing dangers, but most of us side with the whistle-blower when he seems to be right. The government scientist may have less freedom to express his convictions than do his colleagues in industry; he often must be loyal to his management and support its policies.

Another obligation of the industrial scientist is to protect the trade secrets of his employer. In some of the most flagrant cases of theft of proprietary information, both the courts and the American Chemical Society have penalized the offenders. Also, companies tend to protect themselves against such thefts. Employees who have tried to sell trade secrets to a competitor have found that the would-be client may report them to their employer and help get evidence to convict them.

Another type of violation is the hiring of an expert from a competitor in order to get trade secrets. However, most industrial scientists would consider it unethical to divulge trade secrets to the new employer.

Another ethical matter frequently faced by the industrial scientist is the question of who should be named as the inventor on a patent application. The law is clear. The person who conceived the idea is the inventor. However, there is a great deal of art to chemistry, and often the chemist who discovers the proper conditions for making the reaction go may feel cheated if his boss who suggested the reaction is listed as sole inventor. Sometimes the supervisor insists on being listed as co-inventor of all patents developed by those who report to him. Often the patent attorney can resolve these questions of inventorship.

A related question in a research laboratory is the matter of proper recognition and credit for important ideas and technical advances. Most scientists tend to be fair in this matter. Those who are not, and try to assume more credit than they deserve, do not get away with it. Sooner or later their colleagues find them out. Scientists also have an obligation not to falsify or conceal their data. Here, again, such dishonesty is rare and hard to hide.

Ethical Issues in the Social Sciences

Joan E. Sieber
Department of Psychology
California State University, Hayward

The methods and concepts of the social sciences are used in virtually every field of science and technology; e.g., in man-machine engineering, in evaluation of health or welfare delivery programs, in basic research in the life sciences and historiography, as well as in the social sciences themselves. Consequently, discussions of the key ethical issues connected with social science have a place in any program on professional and scientific ethics or scientific literacy.

Since the social sciences deal more with information, such as interview or observational data, than with physical matter such as human tissue or radioactive waste, many key ethical problems in social science have to do with threat to the privacy or to the autonomy of persons or groups. Threat to physical or economic well-being is less at issue than threat to social and emotional well-being. Other problems include accurate assessment of the risks of a particular use of social science, effective communication of this information in order to obtain adequate informed consent from those at risk, and determination of whether there are topics (e.g., race and IQ) or methods (e.g., deception) that should be forbidden in social scientific research. Another important but largely ignored issue is the social justification of social scientific activity--especially when social costs are involved: How can the social benefits of social scientific knowledge be measured? How can these benefits be increased? Who are responsible for dissemination of this knowledge within science, to policy makers, and to the public at large? What opportunities and pitfalls of dissemination need to be considered?

Some creative efforts are underway to understand the risks connected with the social sciences, and to devise methods and procedures for reducing identified risks. However these problems call for further investigation by concerned scientists, scholars and public advocates. Also, educational programs are needed to educate scientists and laypersons about the issues and to provide scientists with conceptual and methodological alternatives that allow scientists to conduct research ethically, without jeopardizing their opportunities to do scientific work.

How Engineering Societies Can Bolster Professional Ethics

Stephen H. Unger
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A fundamental step is the establishment of a good code of ethics. Based on principles of honesty, competence, fair play to all and a paramount regard for the public safety, health and welfare, the code should concisely specify principles particularly relevant to the discipline encompassed by the society. It should be widely discussed in publications and at meetings, with appropriate mechanisms for modification and dissemination so that it can truly be regarded as a "living document".

Of comparable importance is the need for institutional means for backing up engineers, both members and nonmembers of the society, who encounter difficulties as a result of efforts to abide by the code. The existence of this machinery and the procedures for invoking it should be widely publicized.

Engineers in ethical quandries should be able to get advice. An ethics committee should, when appropriate, be prepared to speak informally with an employer to help cool off a situation in which a managerial misunderstanding may be involved. When a serious clash occurs between an engineer and an employer involving an ethical issue, the ethics committee, usually through ad hoc representatives, should carry out a careful, fair investigation, resulting in a written report presenting the essential facts, arguments and principles involved. In most cases, conclusions would be drawn as to whether the engineer has been treated unprofessionally.

Where a reviewing body concurs with a report alleging such unprofessional treatment, the report, with names, should be published in a widely read, archival journal. Subsequently the ethics committee should follow through by seeking a satisfactory resolution of the situation. Periodic listings of unresolved cases, with occasional progress reports should be published so that organizations inhospitable to the ethical practice of engineering become well known.

Awards may be made in cases where engineers show exceptional zeal in upholding ethical principles in the face of risks to their careers. These cases should be widely publicized for their educational effects.

Where litigation is involved, a society should consider intervening through its own attorneys either directly or through amicus curiae briefs. Funds might be offered for legal expenses, and special hardship loans could be made available to a beleagured engineer. A society might also set up procedures to assist a wrongly discharged ethical engineer in finding new employment.

Organizations that agree to abide by guidelines that encourage ethical practice by engineering employees and who have over the years established excellent reputations in this regard, might be listed in an honor roll appearing regularly in a periodical of the society.

Policing members to enforce adherence to the ethics code is, in my view, a low priority activity in the case of employee engineers. With few exceptions (such as plagiarism, unrevealed conflicts of interest or criminal acts) provisions of engineering ethics codes do not readily lend themselves to enforcement. Furthermore, until professional societies have shown themselves willing and able to defend the engineer when he abides by the ethics code, it seems unfair for them to attack him when he violates it.

All of the points discussed above have educational implications. Clearly professional societies should exercise their influence to sensitize engineering

students to the importance of the ethical aspects of their profession. Direct steps may be taken through student chapters of the various societies, and indirectly, through accreditation procedures, engineering schools can be encouraged to do their part.

Carrying out the above program in full is not simple. It requires a commitment of time and money. Working out an ethics code acceptable to thousands of people with diverse philosophical backgrounds is in itself no easy task. Developing procedures that are both fair and practical for investigating conflicts and deciding who is at fault is no easy matter when all of the usual complexities of human relationships may be intertwined with complex technical questions that have no simple answers. Nevertheless, the effort is necessary, even partial success is very valuable and some encouraging beginnings have been made.

Appendix M

Professional Society Ethics Group

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Appendix N

American Anthropological Association

Excerpts from the
"Principles of Professional Responsibility"*
Adopted by the Council of the American Anthropological Association
May 1971

Preamble:

Anthropologists work in many parts of the world in close personal association with the peoples and situations they study. Their professional situation is, therefore, uniquely varied and complex. They are involved with their discipline, their colleagues, their students, their sponsors, their subjects, their own and host governments, the particular individuals and groups with whom they do their field work, other populations and interest groups in the nations within which they work, in the study of processes and issues affecting general human welfare. In a field of such complex involvements, misunderstandings, conflicts, and the necessity to make choices among conflicting values are bound to arise and to generate ethical dilemmas. It is a prime responsibility of anthropologists to anticipate these and to plan to resolve them in such a way as to do damage neither to those whom they study nor, in so far as possible, to their scholarly community. Where these conditions cannot be met, the anthropologist would be well-advised not to pursue the particular piece of research.

The following principles are deemed fundamental to the anthropologist's responsible, ethical pursuit of his profession.

1. Relations with those studied. In research, an anthropologist's paramount responsibility is to those he studies. When there is a conflict of interest, these individuals must come first. The anthropologist must do everything within his power to protect their physical, social, and psychological welfare and to honor their dignity and privacy....

2. Responsibility to the public. The anthropologist is also responsible to the public--all presumed consumers of his professional efforts. To them he owes a commitment to candor and to truth in the dissemination of his research results and in the statement of his opinions as a student of man....

3. Responsibility to the discipline. An anthropologist bears responsibility for the good reputation of his discipline and its practitioners....

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* Note: Full text of the AAA statement is available from the AAA offices at 1703 New Hampshire Avenue, N.W., Washington, D.C. 20009

4. Responsibility to students. In relations with students, an anthropologist should be candid, fair, nonexploitative, and committed to their welfare and academic progress.

As Robert Lekachman has suggested, honesty is the essential quality of a good teacher, neutrality is not. Beyond honest teaching, the anthropologst as a teacher has ethical responsibilities in selection, instruction in ethics, career counseling, academic supervision, evaluation, compensation, and placement....

5. Responsibility to sponsors. In his relations with sponsors of research, an anthropologist should be honest about his qualifications, capabilities, and aims. He thus faces the obligation, prior to entering any commitment for research, to reflect sincerely upon the purposes of his sponsors in terms of their past behavior. He should be especially careful not to promise or imply acceptance of conditions contrary to his professional ethics or competing commitments. This requires that he require of the sponsor full disclosure of the sources of funds, personnel, aims of the institution and the research project, disposition of research results. He must retain the right to make all ethical decisions in his research. He should enter into no secret agreement with the sponsor regarding the research, results or reports.

6. Responsibilities to one's own government and to host governments. In his relation with his own government and with host governments, the research anthropologist should be honest and candid. He should demand assurance that he will not be required to compromise his professional responsibilities and ethics as a condition of his permission to pursue the research. Specifically, no secret research, no secret reports or debriefings of any kind should be agreed to or given. If these matters are clearly understood in advance, serious complications and misunderstandings can generally be avoided.

Epilogue.

In the final analysis, anthropological research is a human undertaking, dependent upon choices for which the individual bears ethical as well as scientific responsibility. That responsibility is a human, not superhuman responsibility. To err is human, to forgive humane. This statement of principles of professional responsibility is not designed to punish, but to provide guidelines which can minimize the occasions upon which there is a need to forgive. When an anthropologist, by his actions, jeopardizes peoples studied, professional colleagues, students or others, or if he otherwise betrays his professional commitments, his colleagues may legitmately inquire into the propriety of those actions, and take such measues as lie within the legitimate powers of their Association as the membership of the Association deems appropriate.

Appendix O

American Association of University Professors

"Academic Freedom and Tenure"
Excerpts from the
1940 Statement of Principles and Interpretive Comments

This restatement of principles agreed upon in 1940 by the AAUP and the Association of American Colleges is known to the profession as the 1940 Statement of Principles on Academic Freedom and Tenure. Excerpts from the 1940 Statement are printed below followed by Interpretive Comments as developed by representatives of the American Association of University Professors and the Association of American Colleges during 1969.* More than 100 organizations have officially endorsed the 1940 Statement.

The purpose of this statement is to promote public understanding and support of academic freedom and tenure and agreement upon procedures to assure them in colleges and universities. Institutions of higher education are conducted for the common good and not to further the interest of either the individual teacher** or the institution as a whole. The common good depends upon the free search for truth and its free exposition.

Academic freedom is essential to these purposes and applies to both teaching and research. Freedom in research is fundamental to the advancement of truth. Academic freedom in its teaching aspect is fundamental for the protection of the rights of the teacher in teaching and of the student to freedom in learning. It carries with it duties correlative with rights. [1]***

Tenure is a means to certain ends, specifically: (1) Freedom of teaching and research and of extramural activities, and (2) a sufficient degree of economic security to make the profession attractive to men and women of ability. Freedom and economic security, hence, tenure, are indispensable to the success of an institution in fulfilling its obligations to its students and to society.

Academic Freedom

(a) The teacher is entitled to full freedom in research and in the publication of the results, subject to the adequate performance of his other academic

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* Note: Full text of the AAUP statement is available from the AAUP offices at One DuPont Circle, Suite 500, Washington, D.C. 20036.

** The word "teacher" as used in this document is understood to include the investigator who is attached to an academic institution without teaching duties.

*** Numbers in brackets refer to Interpretive Comments which follow.

duties; but research for pecuniary return should be based upon an understanding with the authorities of the institution.

(b) The teacher is entitled to freedom in the classroom in discussing his subject, but he should be careful not to introduce into his teaching controversial matter which has no relation to his subject.[2] Limitations of academic freedom because of religious or other aims of the institution should be clearly stated in writing at the time of the appointment.[3]

(c) The college or university teacher is a citizen, a member of a learned profession, and an officer of an educational institution. When he speaks or writes as a citizen, he should be free from institutional censorship or discipline, but his special position in the community imposes special obligations. As a man of learning and an educational officer, he should remember that the public may judge his profession and his institution by his utterances. Hence he should at all times be accurate, should exercise appropriate restraint, should show respect for the opinions of others, and should make every effort to indicate that he is not an instituional spokesman.[4]....

1940 Interpretations

At the conference of representatives of the American Association of University Professors and of the Association of American Colleges on November 7-8, 1940, the following interpretations of the 1940 "Statement of Principles on Academic Freedom and Tenure" were agreed upon:

1. That its operation should not be retroactive.

2. That all tenure claims of teachers appointed prior to the endorsement should be determined in accordance with the principles set forth in the 1925 Conference Statement on Academic Freedom and Tenure.

3. If the administration of a college or university feels that a teacher has not observed the admonitions of Paragraph (c) of the section on Academic Freedom and believes that the extramural utterances of the teacher have been such as to raise grave doubts concerning his fitness for his position, it may proceed to file charges under Paragraph (a) (4) of the section on Academic Tenure. In pressing such charges, the administration should remember that teachers are citizens and should be accorded the freedom of citizens. In such cases, the administration must assume full responsibility and the American Association of University Professors and the Association of American Colleges are free to make an investigation.

1970 Interpretive Comments

Following extensive discussion on the 1940 Statement of Principles on Academic Freedom and Tenure with leading educational associations and with individual faculty members and administrators, a Joint Committee of the AAUP and the Association of American Colleges met during 1969 to reevaluate this key policy statement. On the basis of the comments received, and the discussions that ensued, the Joint Committee felt the preferable approach was to formulate interpretations of the Statement in terms of the experience gained in implementing and applying the Statement for over thirty years and of adapting it to current needs.

The Committee submitted to the two Associations for their consideration the following "Interpretive Comments." These interpretations were approved by the Council of the American Association of University Professors in April 1970 and endorsed by the Fifty-sixth Annual Meeting as Association policy:

In the thirty years since their promulgation, the principles of the 1940 Statement of Principles on Academic Freedom and Tenure have undergone a

substantial amount of refinement. This has evolved through a variety of processes, including customary acceptance, understandings mutually arrived at between institutions and professors or their representatives, investigations and reports by the American Association of University Professors, and formulations of statements by that Association either alone or in conjunction with the Association of American Colleges. These comments represent the attempt of the two associations, as the original sponsors of the 1940 Statement, to formulate the most important of these refinements. Their incorporation here as Interpretive Comments is based upon the premise that the 1940 Statement is not a static code but a fundamental document designed to set a framework of norms to guide adaptations to changing times and circumstances.

Also, there have been relevant developments in the law itself reflecting a growing insistence by the courts on due process within the academic community which parallels the essential concepts of the 1940 Statement; particularly relevant is the identification by the Supreme Court of academic freedom as a right protected by the First Amendment. As the Supreme Court said in Keyishian v. Board of Regents 385 U.S. 589 (1967), "Our Nation is deeply committed to safeguarding academic freedom, which is of transcendent value to all of us and not merely to the teachers concerned. That freedom is therefore a special concern of the First Amendment, which does not tolerate laws that cast a pail of orthodoxy over the classroom."

The numbers refer to the designated portion of the 1940 Statement on which interpretive comment is made.

1. The Association of American Colleges and the American Association of University Professors have long recognized that membership in the academic profession carries with it special responsibilities. Both Associations either separately or jointly have consistently affirmed these responsibilities in major policy statements, providing guidance to the professor in his utterances as a citizen, in the exercise of his responsibilities to the institution and students, and in his conduct when resigning from his institution or when undertaking government-sponsored research. Of particular relevance is the Statement on Professional Ethics, adopted by the Fifty-second Annual Meeting of the AAUP as Association policy and published in the AAUP Bulletin (Autumn, 1966, pp. 290-291).

2. The intent of this statement is not to discourage what is "controversial." Controversy is at the heart of the free academic inquiry which the entire statement is designed to foster. The passage serves to underscore the need for the teacher to avoid persistently intruding material which has no relation to his subject.

3. Most church-related institutions no longer need or desire the departure from the principle of academic freedom implied in the 1940 Statement, and we do not now endorse such a departure.

4. This paragraph is the subject of an Interpretation adopted by the sponsors of the 1940 Statement immediately following its endorsement which reads as follows:

> If the administration of a college or university feels that a teacher has not observed the admonitions of Paragraph (c) of the section on Academic Freedom and believes that the extramural utterances of the teacher have been such as to raise grave doubts concerning his fitness for his position, it may proceed to file charges under Paragraph (a) (4) of the section on Academic Tenure. In pressing such charges, the administration should remember that teachers are citizens and should be accorded the freedom of citizens. In such cases the administration must assume full responsi-

bility and the American Association of University Professors and the Association of American Colleges are free to make an investigation.

Paragraph (c) of the 1940 Statement should also be interpreted in keeping with the 1964 "Committee A Statement on Extramural Utterances" (AAUP Bulletin, Spring, 1965, p. 29) which states inter alia: "The controlling principle is that a faculty member's expression of opinion as a citizen cannot constitute grounds for dismissal unless it clearly demonstrates the faculty member's unfitness for his position. Moreover, a final decision should take into account the faculty member's entire record as a teacher and scholar."

Paragraph V of the Statement on Professional Ethics also deals with the nature of the "special obligations" of the teacher. The paragraph reads as follows:

> As a member of his community, the professor has the rights and obligations of any citizen. He measures the urgency of these obligations in the light of his responsibilities to his subject, to his students, to his profession, and to his institution. When he speaks or acts as a private person he avoids creating the impression that he speaks or acts for his college or university. As a citizen engaged in a profession that depends upon freedom for its health and integrity, the professor has a particular obligation to promote conditions of free inquiry and to further public understanding of academic freedom.

Both the protection of academic freedom and the requirements of academic responsibility apply not only to the full-time probationary as well as to the tenured teacher, but also to all others, such as part-time and teaching assistants, who exercise teaching responsibilities.

(Remaining Interpretive Comments omitted.)

American Association of University Professors

"Statement on Professional Ethics"

The Statement on Professional Ethics was approved by the Council of the American Association of University Professors in April 1966 and endorsed by the Fifty-second Annual Meeting as Association policy.

Introduction

From its inception, the American Association of University Professors has recognized that membership in the academic profession carries with it special responsibilities. The Association has consistently affirmed these responsibilities in major policy statements, providing guidance to the professor in his utterances as a citizen, in the exercise of his responsibilities to students, and in his conduct when resigning from his institution, or when undertaking government-sponsored research.[1] The Statement on Professional Ethics that follows, necessarily presented in terms of the ideal, sets forth those general standards that serve as a reminder of the variety of obligations assumed by all members of the profession. For the purpose of more detailed guidance, the Association, through its Committee B on Professional Ethics, intends to issue from time to time supplemental statements on specific problems.

In the enforcement of ethical standards, the academic profession differs from those of law and medicine, whose associations act to assure the integrity of members engaged in private practice. In the academic profession the individual institution of higher learning provides this assurance and so should normally handle questions concerning propriety of conduct within its own framework by reference to a faculty group. The Association supports such local action and stands ready, through the General Secretary and Committee B, to counsel with any faculty member or administrator concerning questions of professional ethics and to inquire into complaints when local consideration is impossible or inappropriate. If the alleged offense is deemed sufficiently serious to raise the possibility of dismissal, the procedures should be in accordance with the 1940 Statement of Principles on Academic Freedom and Tenure and the 1958 Statement on Procedural Standards in Faculty Dismissal Proceedings.

The Statement

I. The professor, guided by a deep conviction of the worth and dignity of the advancement of knowledge, recognizes the special responsibilities placed upon him. His primary responsibility to his subject is to seek and to state the truth as he sees it. To this end he devotes his energies to developing and improving his scholarly competence. He accepts the obligation to exercise critical self-discipline and judgment in using, extending, and transmitting knowledge. He practices intellectual honesty. Although he may follow subsidiary interests, these interests must never seriously hamper or compromise his freedom of inquiry.

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[1] 1964 Committee A Statement on Extra-Mural Utterances (Clarification of sec. 1c of the 1940 Statement of Principles on Academic Freedom and Tenure)
1968 Joint Statement on Rights and Freedoms of Students
1961 Statement on Recruitment and Resignation of Faculty Members
1964 On Preventing Conflicts of Interest in Government-Sponsored Research
1966 Statement on Government of Colleges and Universities

II. As a teacher, the professor encourages the free pursuit of learning in his students. He holds before them the best scholarly standards of his discipline. He demonstrates respect for the student as an individual, and adheres to his proper role as intellectual guide and counselor. He makes every reasonable effort to foster honest academic conduct and to assure that his evaluation of students reflects their true merit. He respects the confidential nature of the relationship between professor and student. He avoids any exploitation of students for his private advantage and acknowledges significant assistance from them. He protects their academic freedom.

III. As a colleague, the professor has obligations that derive from common membership in the community of scholars. He respects and defends the free inquiry of his associates. In the exchange of criticism and ideas he shows due respect for the opinions of others. He acknowledges his academic debts and strives to be objective in his professional judgment of colleagues. He accepts his share of faculty responsibilities for the governance of his institution.

IV. As a member of his institution, the professor seeks above all to be an effective teacher and scholar. Although he observes the stated regulations of the institution, provided they do not contravene academic freedom, he maintains his right to criticize and seek revision. He determines the amount and character of the work he does outside his institution with due regard to his paramount responsibilities within it. When considering the interruption or termination of his service, he recognizes the effect of his decision upon the program of the institution and gives due notice of his intentions.

V. As a member of his community, the professor has the rights and obligations of any citizen. He measures the urgency of these obligations in the light of his responsibilities to his subject, to his students, to his profession, and to his institution. When he speaks or acts as a private person, he avoids creating the impression that he speaks or acts for his college or university. As a citizen engaged in a profession that depends upon freedom for its health and integrity, the professor has a particular obligation to promote conditions of free inquiry and to further public understanding of academic freedom.

Appendix P

American Chemical Society

Excerpts from the
"Professional Employment Guidelines"*
Prepared by the Council Committee
On Professional Relations
1978

Preamble

The American Chemical Society seeks to enhance the productivity and economic welfare of both chemists and the employers of chemists by the delineation of employment practices that collectively foster the mutual confidence and mutual security of employers and employed chemists and by the review of the practices of individual chemists and employers.

Terms of Employment

The Chemist. 1. The prospective employee should apply only for those positions in which he or she has a sincere interest. Any interview expenses to be reimbursed by the prospective employer must be reported accurately. If more than one employer is visited on an interview trip, expenses should be prorated fairly.

2. The chemist should inform any new employer of previous employment agreements, and should exclude trade secrets or proprietary information of previous employers from new employment agreements. The chemist should not seek or accept employment on the basis of using or divulging any trade secrets or proprietary information.

3. The chemist is obligated to honor an offer of employemnt once accepted unless formally released after giving adequate notice of intent. All of these obligations should be made in writing.

4. The chemist should not use the funds or facilities of the current employer for the purpose of seeking new employment unless approved by the current employer.

The Employer. 1. The conditions of employment should be described fully to the prospective employee. A written statement of these conditions should be supplied to the chemist at the time an employment offer is made.

2. Legal obligations of the chemist to the employer should be clearly set forth in an employment agreement.

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* Note: Full text of the guidelines is available from the ACS offices at 1155 Sixteenth Street, N.W., Washington, D.C. 20036

3. Employment, advancement and compensation shall be based, without regard to sex, age, race, religion, or political affiliation on professional competence and ability to perform assigned responsibilities. Sound indirect compensation programs should include, among others, retirement benefits, health, disability and life insurance, sick leave, and paid holidays and vacation. Permanent (regular) part-time employees should be provided with adjusted indirect compensation programs that are at least proportional to the programs for full-time employees.

4. The employer is obligated to honor a written and accepted offer of a position. If unable to honor it, the employer should provide the chemist with equitable compensation.

5. The employer should recognize that at times during the chemist's employment, family or professional responsibilities may necessitate special arrangements such as the granting of personal leaves, flexible working schedules, and part-time employment. The chemist should be informed at the time of employment that these considerations are available and negotiable.

6. A statement of termination policy should be made available to the candidate during the interviewing process.

Employment Environment

The Chemist. 1. The chemist should engage in all assignments diligently and judiciously, employing his or her most creative and resourceful ideas.

2. The chemist should strive to foster a stimulating and productive work atmosphere.

3. The chemist should solicit and actively participate in regular performance reviews.

4. The chemist should use all necessary safety procedures, and should inform the employer of any hazards in the working environment.

5. The chemist, mindful of his or her responsibility to the public, should strive to insure that products and processes are adequately tested, and that potential hazards are properly identified.

6. The chemist should respect and maintain the confidentiality of the employer's trade secrets and proprietary information.

7. The chemist should use the period of an enforced work stoppage occurring on the premises in a constructive and professional manner.

The Employer. 1. The employer should provide physical facilities that enable the chemist to work safely and efficiently. New personnel should be instructed in the proper handling of material and equipment in order to minimize risks of personal injury. Continuing environmental studies should be conducted to assure that chemists are asked to function only under safe working conditions.

2. The employer should insure that normal working hours leave the chemist adequate time for personal study, rest, and recreation.

3. Management should periodically review each chemist's aptitude, professional growth, and suitability and, within the framework of job requirements, make assignments to utilize these capabilities. If an arrangement is not beneficial, an appropriate reassignment should be made.

4. The employer should maintain conditions that will enable the chemist to make his or her best contributions.

5. The employer should strive to insure that products and processes are

adequately tested, and that potential hazards are properly identified to the public.

6. Performance reviews should be made on a regular basis at least annually. Confidential written records of such reviews should be employee attested and maintained by both the employer and the employee. The employer has the responsibility to discuss fully and promptly with the chemist any unacceptable performance or ineptitude. The chemist should be advised of means to meet the employer's standards.

7. Judgment of the chemist's scientific performance should be rendered by a supervisor who is also a scientific peer. Additionally, the supervisor should consider the evaluation of the chemist's scientific performance by scientific peers.

8. Dual ladders of advancement for chemical supervisors and chemists should be provided and should be realistic. Financial rewards for individuals at the same level should be similar, even though responsibilities are different.

9. Managerial and technical contributions should both be considered as essential to the success of the corporate effort. The chemist should be provided with economic data and appropriate financial and business documents pertaining to his or her effort.

10. Meritorious performance should be rewarded by financial compensation. Increasing levels of skill and responsibility should be rewarded by professional advancement. Extraordinary contributions to patentable inventions, trade secrets or know-how should be compensated by specific rewards commensurate with the value of the contributions to the employer.

11. The chemist should be permitted to consult with other professionals in the field so as to enhance the individual's capabilities. The interchange should be permitted with the understanding that the chemist will not reveal confidential company information in such discussions. In the event of scientific controversy, it is recognized that the chemist will act as an individual and not as a representative of the company.

12. The employer should not inhibit the movement of a chemist from one organization to another, even a competitor, through the use of such practices as covenants not to compete, and claims to subsequently conceived inventions. Competing employers should not assign a relocated chemist to projects which could compromise professional ethics through the use of trade secrets information.

13. The academic employer should observe the 1940 Statement of Principles on Academic Freedom and Tenure of the American Association of University Professors and the Association of American Colleges.

14. The employer should not penalize the chemist who performs only his or her duties during any enforced work stoppage occurring on the premises.

Professional Development

The Chemist. 1. The chemist is responsible for maintaining technical competence and for self-development through continuing education. Additionally, the chemist should support and participate in the activities of appropriate technical societies to enhance professional growth.

2. The chemist should serve the public by using his or her specialized knowledge while participating in civic and political activities. Such participation, however, should be undertaken solely as a responsibility of the individual without involving the employer.

3. The chemist should give credit to all colleagues who contribute to technical accomplishments.

The Employer. 1. The chemist should, as a matter of policy, be encouraged to attend meetings and to take formal courses of study which will enable the individual to maintain scientific competence.

2. The employer should permit reasonable compensated leaves of absence for professional study in order to maintain competence or to improve knowledge in the chemist's field.

3. The chemist should be encouraged and given the opportunity to publish work in scientific journals and to present findings at scientific meetings.

4. The chemist should be given an opportunity to participate in professional and scientific society affairs. The chemist should be allowed sufficient time consistent with the performance of regular duties to carry out responsibilities in such organizations.

5. The chemist should have freedom to participate in political and community activities.

Termination Conditions

The Chemist. The chemist who intends to terminate employment should notify the employer in writing and provide a minimum of four weeks' advance notice. The chemist should assist the employer to maintain continuity of function.

The Employer. 1. The employer should by appropriate forward planning provide stability of employment and avoid multiple terminations.

2. No chemist should be terminated for inadequate performance or for cause without documented evidence and review by two levels of management, provided such levels of management exist, above the immediate supervisor. The opinion of scientific peers should also be considered. An academic chemist regardless of tenure status who is dismissed during a contract period or whose contract is not renewed at a contract anniversary should be accorded full academic due process.

3. No chemist having a minimum of 10 years total service should be terminated except for continuing evidence of previously documented inadequate performance or for cause.

4. Any chemist who is terminated should be notified in writing and be given a minimum of four weeks' advance notice. For academic chemists, termination notices should be given at least 3 months in advance of the end of the contract for the first year of service, at least 6 months for the second year, and at least 12 months for the third or later years.

5. The chemist should receive severance pay consisting of two weeks' salary for each year of service, beyond the minimum of four weeks' advance notice. Additional notice in lieu of severance pay may be provided by mutual consent of both parties.

6. Every effort should be made to place the individual in another position within the organization, including retraining for a new position if necessary. When it is determined that such relocation is not possible, the chemist should be given assistance in finding employment elsewhere.

7. Any chemist terminated with a minimum of 10 years' total service should have fully vested pension rights with survivor benefits.

8. Any chemist who is involuntarily retired by an employer should be treated at least as well as an employee dismissed for economic reasons (i.e., to be given severance pay, notice, vested pension privileges, etc.).

9. The employer should continue life insurance and medical care plans for a minimum of one month, plus two weeks for each year of employee service, at the same rate of contribution as when the terminee was an employee. The employee would have an additional 31 day grace period.

10. The employer should follow a policy of rehiring those terminated in a retrenchment before similarly qualified employees are recruited. Rehire privileges should be carefully explained to terminated employees.

Definition of a Multiple Termination

A multiple termination occurs when the employment of three or more chemists or chemical engineers is terminated within a six-month period for reasons other than: 1) continuing evidence of previously documented inadequate performance, 2) completion of a contract, or 3) cause. The academic chemists or chemical engineers must be tenured or in a tenure-leading position.

Investigation of Unprofessional Conduct

The Chemist. 1. The Committee on Professional Relations will investigate instances of conduct by chemists reported to be in violation of the Professional Employment Guidelines.

2. The conclusions of the committee will be communicated to the parties involved.

3. Documented instances of unethical conduct can lead to initiation of proceedings before the Council of the American Chemical Society, in accordance with Article IV, Sec. 3 of the Constitution and Bylaw I, Sec. 7.

The Employer. 1. The Committee on Professional Relations will investigate instances of conduct by employers reported to be in violation of the Professional Employment Guidelines.

2. The committee will extend assistance to chemists whom the committee has deemed to have been treated unprofessionally.

3. Documented unprofessional conduct by an employer can lead to citation before the Council of the American Chemical Society and subsequent publication.

American Chemical Society

Committee on Professional Relations
"Member Assistance Guidelines"
(Revision of March 23, 1977)

1. General

The American Chemical Society, principally through its Committee on Professional Relations, is willing to assist individual members or groups of members involved in situations which they feel may compromise their professional status or attainment. Such situations are exemplified by, but not necessarily limited to, those in which members believe they have been terminated inequitably, and those involving employment positions which members believe do not afford a proper professional environment.

2. Member Assistance Request and Authorization

In situations called to its attention, the committee will request the affected member(s) to file a statement (a) absolving it and the Society of responsibility, (b) officially requesting the assistance of the Society, and (c) authorizing the Society to contact all parties involved so that a thorough inquiry can be conducted.

3. Confidentiality

To protect the professional or employment position of members seeking its assistance, the committee will treat each matter of this kind confidentially. No names of persons will be divulged save by mutual agreement of those involved.

4. Appropriateness

The committee will offer assistance only in those cases when, after examining all available evidence, it believes the member's situation merits such attention. When appropriate, the committee will seek remedial action by discussions and through correspondence in an attempt to achieve a mutual understanding and an equitable and professional resolution of the particular problem.

5. Timeliness

Only those cases will be considered for which action currently is pending or for which significant developments have occurred within the past two years.

6. References

For those situations involving relationships between members and their employers, the committee will consult the "Professional Employment Guidelines" approved by the Council and Board of Directors.

7. Peer Evaluations

In general, the committee will not engage in an independent evaluation of a member's scientific competence or performance on the job.

8. Compensation

The committee cannot become involved in negotiating salary levels or financial remuneration for specific services rendered by members to their employers or others.

9. Academic Situations

The committee will investigate cases that involve professionalism, discrimination, and the like. As is true in other cases, situations that involve peer evaluation alone will not be handled by the committee. Problems dealing with student-faculty relations generally will be declined unless the facts seem to indicate problems go beyond peer evaluation.

10. Legal Assistance

The Society ordinarily cannot offer legal assistance to individual members in professional matters. It will, when appropriate, recommend that a member seek legal advice from a lawyer of his own choosing. Only when a precedent affecting the profession as a whole may be at issue is it possible for the Society to offer the services of its General Counsel.

American Chemical Society

"Legal Aid Loan Program"
(1976)

Purpose

To provide financial assistance in the form of loans to individual chemists and chemical engineers so that they may pay necessary legal fees occurring from litigation involving their professional status or directly affecting their careers in chemistry.

Nature of the Loan

The loan limit for any chemist or chemical engineer, as defined below, shall be $2,000, except that it may be as much as $10,000 when suitable security is provided; however, the requirement for suitable security may be waived at the discretion of the Board of Directors. The rate of interest shall be set annually by the ACS Board of Directors and, at the time set, shall not exceed the prevailing rate charged by financial institutions for a secured loan. Loans will normally be repaid in monthly installments over a period of up to three years, but special arrangements may be made. For example, repayment may be deferred until the litigation has been adjudicated, or other repayment scheules agreed upon. The period of repayment may also be extended on request, in cases of special hardship.

Eligibility

An applicant for an ACS Legal Aid Loan must be a member of the Society or provide written evidence of professional training and work experience that would qualify him or her as a professional chemist or chemical engineer eligible for membership (as specified in Bylaw I, Section 3 of the Society's Constitution and Bylaws). The applicant must be a litigant, or expect soon to become a litigant, in a case involving the applicant's professional status or affecting his or her career in chemistry. Prior to submission of a Legal Aid Loan Application, the applicant must first have applied to the ACS Council Committee on Professional Relations for help under the Member Assistance Program of the committee. If the case is not yet in litgation, the committee will seek to examine both sides of each case, attempt to resolve the issues involved, and suggest possible solutions to the problem. In the event that the applicant does not feel that a satisfactory solution has been achieved, and wishes to resort to legal means to resolve the issue, the applicant may then apply to the Board of Directors of the ACS for a Legal Aid Loan. If the case is already in litigation, the committee will review the case and prepare a report for the Board to help with its consideration of any Legal Aid Loan application that may then be submitted. Neither the Council Committee on Professional Relations nor the Board of Directors will process a Legal Aid Loan application until a member assistance request is submitted by the applicant.

Application Procedure

The applicant must submit to the ACS Executive Director a completed loan application form, to be provided by the Society, supplying such information as the nature of the litigation, prior efforts to solve the problem, the need for a loan, the amount of the loan, and proposed repayment arrangements. If the applicant is not a member of the Society, a service charge may be levied. After securing appropriate review, the Executive Director will submit the loan application, together with a resume of the deliberations of the Committee on Professional Relations, to the ACS Board of Directors for action. Applications relating to cases already in litigation will be considered by the Board only after investigation by counsel and preparation of a report by the Commit-

tee on Professional Relations. The ACS Board of Directors in its sole discretion shall make the final determination regarding approval or disapproval of the loan application. Prior to receiving payment, the applicant must sign a promissory note specifying the amount and terms of the loan.

Appendix Q

American Psychological Association

Excerpts from the
APA Casebook on Ethical Standards of Psychologists
(1967)*

Principle 6. Confidentiality

Safeguarding information about an individual that has been obtained by the psychologist in the course of his teaching, practice, or investigation is a primary obligation of the psychologist. Such information is not communicated to others unless certain important conditions are met.

Case 6.D. A psychologist in opinion research completed a study for a firm which used the findings in a case before the Federal Communications Commission. The lawyer for the adversary in the case demanded the names of the interviewees for the purported purpose of checking the evidence. The psychologist declined to comply with the request, and when the Commission charged him to show cause why he should not reveal the names, he made the following statement.

> Not only do I feel that the proposed resurvey does not constitute a sound basis for challenging the present survey, but there is also good reason to believe that if this precedent were allowed, it would endanger and eventually annihilate the proper use of surveys in which the government, industry, and academic bodies invest millions of dollars for guidance in policy-making and the advancement of knowledge. Experiments made by psychologists to explore this very point have shown that survey results vary according to whether or not the respondents belive they are speaking in anonymity.
>
> Perhaps the precedent for all of these protestations can be found in the Federal Government itself, which has given to the census a confidential status.

Opinion. Since the psychologist offered to make available all of his data, including the completed questionnaires for examination as long as the identity of respondents had been first removed, he was not unethical in refusing to reveal the names in connection with the answers. In fact, since he had promised anonymity for the respondents, he would have been unethical in revealing the identity of the respondents.

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*Note: The full text of the casebook and APA code is available from the APA offices at 1200 Seventeenth Street NW, Washington, DC 20036.

Appendix R

American Society of Civil Engineers

"Code of Ethics"
(As Adopted September 25, 1976)

Fundamental Principles*

Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

1. using their knowledge and skill for the enhancement of human welfare;

2. being honest and impartial and serving with fidelity the public, their employers and clients;

3. striving to increase the competence and prestige of the engineering profession; and

4. supporting the professional and technical societies of their disciplines.

Fundamental Canons

1. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.

2. Engineers shall perform services only in areas of their competence.

3. Engineers shall issue public statements only in an objective and truthful manner.

4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.

5. Engineers shall build their professional reputation on the merit of their service and shall not compete unfairly with others.

6. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession.

7. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

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*The American Society of Civil Engineers adopted The Fundamental Principles of the ECPD Code of Ethics of Engineers as accepted by the Engineers' Council for Professional Development (ECPD). (By ASCE Board of Direction action April 12-14, 1975.)

American Society of Civil Engineers

Excerpts from the
"ASCE Guidelines to Practice Under
the Fundamental Canons of Ethics"*

1. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.

a. Engineers shall recognize that the lives, safety, health, and welfare of the general public are dependent upon engineering judgments, decisions and practices incorporated into structures, machines, products, processes, and devices.

b. Engineers shall approve or seal only those design documents, reviewed or prepared by them, which are determined to be safe for public health and welfare in conformity with accepted engineering standards.

c. Engineers whose professional judgment is overruled under circumstances where the safety, health and welfare of the public are endangered shall inform their clients or employers of the possible consequences.

d. Engineers who have knowledge or reason to believe that another person or firm may be in violation of any of the provisions of Canon 1 shall present such information to the proper authority in writing and shall cooperate with the proper authority, in furnishing such further information or assistance as may be required.

e. Engineers should seek opportunities to be of constructive service in civic affairs and work for the advancement of the safety, health, and well-being of their communities.

f. Engineers should be committed to improving the environment to enhance the quality of life.

2. Engineers shall perform services only in areas of their competence.

a. Engineers shall undertake to perform engineering assignments only when qualified by education or experience in the technical field of engineering involved.

b. Engineers may accept an assignment requiring education or experience outside of their own fields of competence, provided their services are restricted to those phases of the project in which they are qualified. All other phases of such project shall be performed by qualified associates, consultants, or employees.

c. Engineers shall not affix their signatures or seals to any engineering plan or document dealing with subject matter in which they lack competence by virtue of education or experience or to any such plan or document not reviewed or prepared under their supervisory control.

3. Engineers shall issue public statements only in an objective and truthful manner.

a. Engineers should endeavor to extend the public knowledge of engineering, and shall not participate in the dissemination of untrue, unfair, or exaggerated statements regarding engineering.

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*Note: Full text of the ASCE guidelines is available from the ASCE offices at 345 E. 47th Street, New York, NY 10017.

b. Engineers shall be objective and truthful in professional reports, statements, or testimony. They shall include all relevant and pertinent information in such reports, statements, or testimony.

c. Engineers, when serving as expert witnesses, shall express an engineering opinion only when it is founded upon adequate knowledge of the facts, upon a background of technical competence, and upon honest conviction.

d. Engineers shall issue no statements, criticisms, or arguments on engineering matters which are inspired or paid for by interested parties, unless they indicate on whose behalf the statements are made.

e. Engineers shall be dignified and modest in explaining their work and merit, and will avoid any act tending to promote their own interests at the expense of the integrity, honor, and dignity of the profession.

4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.

a. Engineers shall avoid all known or potential conflicts of interest with their employers or clients and shall promptly inform their employers or clients of any business association, interest, or circumstances which could influence their judgment or the quality of their services.

b. Engineers shall not accept compensation from more than one party for services on the same project, or for services pertaining to the same project, unless the circumstances are fully disclosed to and agreed to, by all interested parties.

c. Engineers shall not solicit or accept gratuities, directly or indirectly, from contractors, their agents, or other parties dealing with their clients or employers in connection with work for which they are responsible.

d. Engineers in public service as members, advisors, or employees of a governmental body or department shall not participate in considerations or actions with respect to services solicited or provided by them or their organization in private or public engineering practice.

e. Engineers shall advise their employers or clients when, as a result of their studies, they believe a project will not be successful.

f. Engineers shall not use confidential information coming to them in the course of their assignments as a means of making personal profit if such action is adverse to the interests of their clients, employers, or the public.

g. Engineers shall not accept professional employment outside of their regular work or interest without the knowledge of their employers.

h. Engineers shall not review the work of other engineers for the same client except with the knowledge of such engineers, unless the assignments for the work have been termianted. However, engineers in governmental, industrial, or educational employment are entitled to review and evaluate the work of other engineers when so required by their duties.

5. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.

a. Engineers shall not give, solicit or receive either directly or indirectly any commission, political contribution, or a gift or other consideration in order to secure work, exclusive of securing salaried positions through employment agencies.

b. Engineers should negotiate contracts for professional services fairly and on the basis of demonstrated competence and qualifications for the type of professional service required.

c. Engineers shall not attempt to obtain, offer to undertake, or accept commissions for which they know other legally qualified individuals or firms have been selected or employed until they have evidence that the selection, employment or agreements of the latter have been terminated and they give the latter written or other equivalent notice that they are so doing.

d. Engineers shall not request, propose or accept professional commissions on a contingent basis under circumstances in which their professional judgments may be compromised.

e. Engineers shall not falsify or permit misrepresentation of their academic or professional qualifications or experience.

f. Engineers shall give proper credit for engineering work to those to whom credit is due and recognize the proprietary interests of others. Whenever possible, they shall name the person or persons who may be responsible for designs, inventions, writings, or other accomplishments.

g. Engineers may advertise professional services in a way that does not contain self-laudatory or misleading language or is in any other manner derogatory to the dignity of the profession....

h. Engineers shall not maliciously or falsely, directly or indirectly, injure the professional reputation, prospects, practice or employment of another engineer or indiscriminately criticize another's work.

i. Engineers shall not use equipment, supplies, laboratory, or office facilities of their employers to carry on outside private practice without the consent of their employers.

6. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession.

a. Engineers shall not knowingly act in a manner which will be derogatory to the honor, integrity, or dignity of the engineering profession or knowingly engage in business or professional practices of a fraudulent, dishonest, or unethical nature.

7. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

a. Engineers should keep current in their speciality fields by engaging in professional practice, participating in continuing education courses, reading in the technical literature, and attending professional meetings and seminars.

b. Engineers should encourage their engineering employees to become registered at the earliest possible date.

c. Engineers should encourage engineering employees to attend and present papers at professional and technical society meetings.

d. Engineers shall uphold the principle of mutually satisfying relationships between employers and employees with respect to terms of employment including professional grade descriptions, salary ranges, and fringe benefits.

Appendix S

American Society of Mechanical Engineers

Council Policy
1978

"Violations of the Constitution, By-Laws or Code of Ethics: Procedure for Unethical Conduct Cases"

ASME requires ethical conduct by its members and adherence to the provisions of the Constitution, By-Laws, and Code of Ethics. There may be occasions when charges of unethical conduct are filed against a member of the Society, and a following procedure is designed to insure a prompt, thorough investigation and disposition of the matter. It is in the best interests of the member charged, the Society, and the profession that such matters be handled in an impartial and confidential manner. Members and staff involved in the investigation, hearing and disposition of such cases shall not disclose particulars of any case except as required by their assigned duties.

Occasionally, complaints are brought to the attention of the Society arising out of the conditions of employment of a member, which upon examination are not within the scope of the ASME Code of Ethics. Such matters have to be resolved by the employer and the employees.

ASME can only consider charges brought against a current member of the Society.

I. Organization.

The Professional Affairs and Ethics Committee (PAEC), a standing committee of the Policy Board, Professional and Public Affairs, has the responsibility for implementing the procedure defined in this Council Policy. This committee is composed of 25 members representing all Regions of the Society.

In any case requiring the formation of a Hearing Board, the Chairman of the Professional Affairs and Ethics Committee shall promptly appoint a Hearing Board comprised of three (3) or more, but not more than five, members of the Professional Affairs and Ethics Committee. These members should be chosen from the geographical area in which the charged member resides so that ample opportunity is provided at minimal cost for the charged member to respond to and defend himself aginast the charges preferred. These members of a Hearing Board will be reimbursed for reasonable expenses incurred to attend the Hearing.

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*Note: Copies of this statement are available from the ASME offices at 345 E. 45th Street, New York, NY 10017.

The Chairman of the Professional Affairs and Ethics Committee shall not serve as a member of any of these Hearing Boards.

II. Complaint Phase.

1. To initiate action, a signed, written complaint giving all details of the alleged violation of the Society's governing regulations and Code of Ethics shall be filed with the Executive Director and Secretary of the Society. The complaint may be filed by any interested person or group within or without the Society.

2. The Executive Director and Secretary, upon receipt of a complaint of alleged unethical conduct on the part of a member of the Society, shall within 60 days:

a. ascertain whether the person against whom the complaint has been made is currently a member of the Society.

b. decide, with concurrence of the Chairman of the Professional Affairs and Ethics Committee, whether or not it is of such a trivial nature that it can be handled by the Executive Director and Secretary.

3. In each case which is determined to be of such importance that it is to be submitted to the Professional Affairs and Ethics Committee for disposition, the Executive Director and Secretary shall:

a. send the Chairman of the Professional Affairs and Ethics Committee a copy of the complaint received and request him to determine if the complaint is within the scope of the ASME Constitution, By-Laws, or Code of Ethics.

b. acknowledge receipt of the complaint to the complainant by Certified Mail, and,

c. open an official file on the case and deposit in this file copies of all correspondence and other documents relating to the matter.

4. The Chairman of the Professional Affairs and Ethics Committee, upon receipt of the detailed complaint from the Executive Director and Secretary, shall carefully study the complaint and determine whether, in his opinion, the case appears to be one for further action by the Committee.

a. If the Chairman of the Professional Affairs and Ethics Committee determines that no provisions of the Constitution, By-Laws or Code of Ethics are pertinent to the complaint, he shall so notify the Executive Director and Secretary in writing. All such decisions shall be subject to review by the Executive Committee of Council which may concur or may order an investigation of the complaint.

b. If the Chairman of the Professional Affairs and Ethics Committee determines that the complaint appears to be one for further action by the committee, he shall so notify the Executive Director and Secretary in writing and request the appointment of a Staff Investigator to conduct a thorough investigation of the matter for the Professional Affairs and Ethics Committee.

5. The Executive Director and Secretary, upon receipt of the written opinion of the Chairman of the Professional Affairs and Ethics Committee as in 4a and concurred with by the Executive Committee, shall:

a. notify the complainant that the matter does not appear to be within the provisions of the ASME Constitution, By-Laws or Code or Ethics and hence is not a matter for action by the Society, and

b. close the official file on the matter and retain the file in the records of the Society.

6. The Executive Director and Secretary upon receipt of the written opinion of the Chairman of the Professional Affairs and Ethics Committee as in 4b shall:

a. advise the member so charged by Certified Mail (Return Receipt requested) that:

(1) a complaint has been filed. (A copy of which shall be sent the charged member at that time).

(2) the complaint alleges matters to be within the scope of the Constitution, By-Laws or Code of Ethics,

(3) an investigation will be made to determine if the complaint is substantiated by facts, and

(4) the charged member is encouraged to respond, within thirty days, to the complaint, and to advise where he may be contacted.

b. designate an investigator to serve as Staff Investigator to conduct an investigation of the matter.

c. indicate so far as possible to the Staff Investigator the Canons which appear to have been violated. This should not be construed as limiting the investigation, but merely to serve as a starting point for his investigation.

III. Investigative Phase

1. The Staff Investigator shall hold informal conferences on the subject matter of the complaint with the charged member, the complainant, and any other persons known or believed to have knowledge of the matter, and shall advise each of them that their legal counsel, if desired, may be present at such conferences. All ASME members have the moral and ethical obligation of assisting in resolving any ethics matter of which they have any knowledge, by attending such conferences and presenting any information bearing on the matter.

In the conduct of these informal conferences, the following should be kept in mind by all concerned:

a. the purpose is to determine if there is factual cause for further action by the Society,

b. it is not a legal hearing, but an informal conference to determine the facts in the matter,

c. the greatest tact must be exercised by the Staff Investigator, for the charged member is not "accused" by ASME in a legal sense, yet full investigation of the circumstances of the matter is necessary,

d. if, during the conference, information is obtained which suggests the need to broaden the scope of the charges or of the investigation, the Staff Investigator must conduct such additional investigation before completing the investigation of the matter.

2. After the Staff Investigator has assured himself that all pertinent information concerning the matter has been secured, he shall prepare a detailed written report giving all factual data concerning the matter.

3. The Chairman of the Professional Affairs and Ethics Committee shall review the report of the Staff Investigator and shall decide on the basis of the facts reported:

a. either that the facts do not warrant any further action by the Society or

b. that the complaint appear to be based on factual information and that further action by the Society is warranted.

After reaching a decision on the matter, the Chairman of the Professional Affairs and Ethics Committee shall notify in writing the Executive Director and Secretary of his decision.

4. If no further action is warranted, as in 3a, the decision will be reviewed and confirmed by the Executive Committee of the Council, and the Executive Director and Secretary shall:

a. notify all principals to the matter by Certified Mail that the matter is closed, and

b. shall close the official file on the matter and retain the file in the records of the Society.

5. If further action is required, as in 3b, the Executive Director and Secretary shall:

a. draft a formal statement of charges,

b. request the Chairman of the Professional Affairs and Ethics Committee to form a Hearing Board of three (3) or more members of the Professional Affairs and Ethics Committee to conduct a Hearing on the matter. A copy of the formal statement of charges is included with this notice.

IV. Hearing Phase

1. The Chairman of the Professional Affairs and Ethics Committee, upon receipt of notification from the Executive Director and Secretary requesting the formation of a Hearing Board, shall promptly appoint a Hearing Board of three (3) or more, but not more than five, members of the Professional Affairs and Ethics Committee to hear testimony and decide on the matter. He appoints one (1) member as Chairman of the Hearing Board.

Those selected for a Hearing Board are appointed for the duration of the Hearing independent of their term of membership on the PAEC.

2. The Hearing Board shall normally be chosen by the Chairman of the Professional Affairs and Ethics Committee from those members of the Committee serving the geographical area in which the charged member resides.

Should manpower requirements so dictate, any member of the Professional Affairs and Ethics Committee may be designated to fill vacancies on the Hearing Board by the Chairman of the Professional Affairs and Ethics Committee, provided, however, that no vacancy shall be filled after the start of a Hearing.

3. The Chairman of the Professional Affairs and Ethics Committee forwards copies of the statement of charges for the use of the Hearing Board to provide members the opportunity to resign from the Board if any conflict of interest, friendship, prejudgment or prejudice might arise after review of the statement. If any member resigns from the Board for such a reason, he shall be replaced by the Chairman of the Professional Affairs and Ethics Committee from other members of the Committee.

4. The Hearing Board of the Professional Affairs and Ethics Committee confers by telephone or other means to determine a convenient location and date for Hearing of the matter. The date selected shall be such as to afford at least 30 days notice of the Hearing to all parties.

5. The Executive Director and Secretary notifies by Certified Mail, all parties to the matter, such as the charged member, the complainant, and the Staff Investigator, of the time and location of the Hearing. The charged member shall be provided with a copy of the statement of charges, and shall be invited to appear in person, with legal counsel if desired, to respond to the charges. The charged member is not required to be present at the Hearing but is urged to attend. If the charged member so desires, he may file a written statement in response to the charges, in lieu of, or in addition to attending the Hearing.

6. The Hearing shall be conducted as follows:

a. attendance at Hearings shall be limited to:

-members of the Hearing Board,

-the Executive Director and Secretary or a designated Staff member,

-the Staff Investigator,

-the charged member,

-the complainant,

-witnesses,

-a qualified court reporter,

-Counsel for ASME and for any of the above, if desired.

b. a record of the Hearing shall be made by a qualified court reporter. A transcript will be prepared of the Hearing and a copy made for the Society and a copy made for the charged member.

c. the Chairman of the Hearing Board shall preside.

7. The Agenda for the Hearing shall be as follows:

a. Statement by the Chairman that the Board will limit its deliberations and voting to the charges contained in the statement of charges to those present.

b. Opening statement by the Chairman of the Board containing a summary of the charges and distribution of the statement of charges to those present.

c. Opening statement by charged member or his counsel, if desired.

d. Presentation by the Staff Investigator of evidence relating to the charges.

e. Presentation of defense. The charged member and his counsel shall have the right to be present throughout the Hearing until the presentation of evidence and closing statements, if any, have been concluded, and the charged member shall have the right to question any witness, the complainant, if present, or the Staff Investigator.

f. A short recess to allow the Hearing Board members opportunity to review evidence presented and prepare questions.

g. Members of the Hearing Board shall have the right to question any witness, and the charged member if present, and the complainant if present, and the Staff Investigator.

h. Closing statements, if desired, by the Staff Investigator and by the defense.

i. The Chairman shall then close the Hearing and the Hearing Board shall go into Executive Session to discuss the evidence presented, and to reach a decision.

j. In the event that no defense is presented either in person or in writing, the Hearing Board shall proceed with the Hearing on the basis of the charges, and the evidence presented to it.

8. The Hearing Board shall decide the case by voting by ballot. The following procedure will be followed sequentially:

a. First, the Board shall determine whether each charge is sustained or proven. Separate ballots shall be voted on each Article of the Constitution, By-Laws, or Code of Ethics alleged to have been violated. A majority vote of the entire Board shall prevail. If a violation of one or more of the Articles of the Constitution, By-Laws, or Code of Ethics is not established by majority vote of the entire Board, the charged member shall be declared "Cleared of all charges".

b. If one or more charges have been sustained by majority vote of the entire board, a ballot shall be taken on the question: "Shall the Board recommend that the charged member be expelled from the Society?" A vote of 2/3 of the entire Board shall be required for expulsion.

c. If the ballot on expulsion fails to carry, a ballot shall then be taken on the question: "Shall the Board recommend that the charged member be suspended for one year from the Society?" A majority vote of the entire Board shall prevail.

d. If the ballot on suspension fails to carry, a ballot shall be taken on the question: "Shall the Board recommend that the charged member be sent a letter of censure?" A majority vote of the entire Board shall prevail.

e. If the ballot on censure fails to carry, the charged member shall be declared, "Cleared of all charges".

9. The Hearing Board shall forward its decision in writing to the Executive Director and Secretary, and the Chairman of the Professional Affairs and Ethics Committee.

10. If the decision is that "the charged member is cleared of all charges", the Executive Director and Secretary shall submit the decision to the Executive Committee of the Council for confirmation after which he shall:

a. notify the charged member by Certified Mail.

b. notify the complainant by Certified Mail.

c. notify the Staff Investigator by Certified Mail.

d. deposit the decision of the Hearing Board in the official file of the matter, close the file on the case, and retain the file in the records of the Society.

11. If the decision is that the charged member has violated one or more of the Articles of the Constitution, By-Laws or Code of Ethics, and the Board has recommended disciplinary action, the Executive Director and Secretary shall:

a. notify the charged member by Certified Mail of the Board's decision and advise him that unless appealed to the Council within 30 days, it will be reviewed by the Council under provisions of Section V? below.

b. forward the decision to Council for review.

V. Review & Appeal Phase

I. If the charged member appeals the Hearing Board's decision within 30 days after notice, the Executive Committee of Council will review the official file, the record of the Hearing, and will hear in person, or will consider a brief prepared by the charged member, or will consider new evidence not produced at the Hearing.

The Executive Committee of Council may take the following action after an appeal:

a. It may recommend that Council sustain the decision of the Hearing Board and implement the recommended action against the charged member.

b. It may recommend that Council sustain the decision of the Board, but modify the recommended action against the charged member to a less serious action (i.e., suspension instead of expulsion, etc.) or

c. It may recommend that Council dismiss the charge against the member, if in its opinion the case warrants such action.

2. If the charged member does not appeal the decision of the Hearing Board within 30 days, the Council shall at its next regularly scheduled meeting, vote on whether to confirm the decision of the Hearing Board and implement the recommended action by so instructing the Executive Director and Secretary.

a. A 2/3 vote of Council shall be required to confirm a decision of the Hearing Board leading to the expulsion of a member.

b. A majority vote of Council shall be required to confirm a decision of the Hearing Board leading to the suspension or or censure of a member.

3. The action of the Council shall conclude the matter and the official file shall be closed and the contents thereof shall not be disclosed except by authority of Council.

4. The Chairman of the Professional Affairs & Ethics Committee shall be notified in writing of any action taken by the Executive Committee on review or appeal of a decision of a Hearing Board for the future guidance of the Professional Affairs & Ethics Committee.

5. The membership shall be notified of all expulsions of members for violations of the provisions of the Constitution, By-Laws, or the Code of Ethics, by publication of a suitable notice in MECHANICAL ENGINEERING.

6. The Council shall determine if public notice in MECHANICAL ENGINEERING shall be given in any case where suspension or censure is recommended by the Hearing Board.

Appendix T

American Sociological Association

Excerpts from the
"Proposed ASA Code of Professional Ethics"*
(1980)

Preamble

Sociological research, teaching, and practice, like other social processes, have positive and negative consequences for individuals and institutions; consequently, the work of sociologists must be enhanced and restrained by ethical considerations. Sociological knowledge can be a form of economic and political power, and sociologists need to protect themselves, the discipline, the people they study and teach, their colleagues, and "society as a whole" from abuses of power that may stem from their work.

Agreement on what constitutes abuses of power is not easily reached. In addition, researchers and teachers face inherent ethical dilemmas. On the one hand, they must be responsive and responsible to the truths they uncover in research and promulgate in teaching; they must not distort or manipulate truth to serve untruthful, personal or institutional ends, and they must make sociological knowledge freely available to everyone. On the other hand, however, a first principle of ethics holds that people are always to be considered ends and not means, so that whether they are being studied or taught, their integrity, dignity, and autonomy must be maintained. The possible conflicts between the responsibilities of sociologists to truth and knowledge and to the rights of their subjects, students, and associates is therefore one justification for a code of ethics. Another is that, as professionals, sociologists are expected to regulate themselves through individual, peer, and associational action.

This Code has several purposes. It establishes feasible requirements for ethical behavior, that is, standards that are neither unachievably utopian nor crassly "realistic." These requirements cover many--but not all--of the potential sources of ethical conflict that may arise in research, teaching, and practice. Some provisions are "should" statements that represent ideals to strive for; others are "must" statements that represent necessary rules. The Code states an associational consensus about ethical behavior upon which the Committee on Professional Ethics will base its judgments when it must decide whether individual members of the Association have acted unethically in specific instances. More than this, however, the Code is meant to sensitize all sociologists to the ethical issues that may arise in their work, and to encourage sociologists to educate themselves and their colleagues to behave ethically.

To fulfill these purposes, we, the members of the American Sociological

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*Note: Full text of the proposed code is available from the ASA offices at 1722 N Street NW, Washington, DC 20036.

Association, affirm and support the following Code of Ethics:

I. Research

A. Objectivity and Integrity. Sociologists should strive to maintain objectivity and integrity in the conduct of their research.

1. Sociologists must not misrepresent their own abilities, or the competence of their staff, to conduct a particular research project.

2. Sociologists must present their findings honestly and without distortion. There must be no omission of data from research reports which might significantly modify the interpretation of findings. And sociologists should indicate where and how their own theoretical and methodological perspectives may bear upon or influence the interpretation of research findings.

3. Sociologists must report fully all sources of financial support in their research publications and must note any special relations to the sponsor that might affect the interpretation of findings.

4. Sociologists must honor any commitments made to persons or groups in order to gain research access.

5. Sociologists must not accept such grants, contracts, or research assignments as appear likely to require violation of the principles above, and should dissociate themselves from the research if they discover a violation and are unable to achieve its correction.

6. The ASA may ask an investigator for clarification of any distortion by a sponsor or consumer of the findings of a research project in which he or she has participated.

7. When financial support for a research project has been accepted, sociologists must make every reasonable effort to carry out the research proposed and to fulfill the reporting requirements of the funding source.

8. Sociologists should lend their expertise on a pro bono basis for organizations and groups that cannot afford to fund them.

9. When sociologists, including students, are involved in joint research, there should be explicit agreements at the outset with respect to division of work, compensation, access to data, rights of authorship, and other rights and responsibilities. Such agreements must be observed and not thereafter unilaterally changed by any of the participants.

B. Misrepresentation of Research Role. Sociologists must not knowingly use their role as a cover to obtain information for other than sociological research purposes.

C. Respect for the Rights of Research Subjects.

1. Research subjects are entitled to rights of privacy and dignity of treatment.

2. Research must not, without informed consent, expose subjects to risk or personal harm in the research process.

3. Confidential information provided by research subjects must be treated as such by sociologists, even when research information is not privileged communication under the law....

II. Publications and Review Processes

A. Questions of Authorship and Acknowledgement.

1. Sociologists must acknowledge the contribution of all persons who collaborated in the research and publication processes (including colleagues, student assistants, typists, editors, etc.).

2. Claims and ordering of authorship must accurately reflect the contributions of all major participants in the research and writing process, including students. (Where the order of names in a joint-authored piece is ambiguous, a note may be used to explain the ordering.)

3. Material taken verbatim from another person's published or unpublished work must be enclosed in quotation marks and explicitly referenced to its author. Borrowed ideas or data, even if not quoted, must be explicitly acknowledged.

B. Submission for Publication. Submission of a manuscript to a professional journal clearly implies commitment to publish in that journal. Once a paper has been submitted for review to one journal, it must not be submitted to another journal until after an official decision has been received from the previous journal....

C. Participation in Review Processes. Sociologists are frequently asked to provide evaluations of manuscripts or research proposals prepared by colleagues. Few professional obligations are as important, or subject to abuse, as this, and sociologists should hold themselves to high standards of performance, in several specific ways:

1. Unless requests of evaluations of colleagues' work can be met on time, they should be declined soon after they are received.

2. Sociologists should decline requests for reviews of the work of others where strong conflicts of interest are involved....

III. Teaching and the Rights of Students

A. Sociologists are obliged to protect the rights of students to fair treatment and competent teaching.

1. Sociologists must provide students with explicit policies and criteria about recruitment and admission, financial support, and conditions of possible dismissal. Sociologists should also help to locate employment for students who complete programs.

2. Sociologists must provide clear expectations for students' performances and make objective evaluations of their work.

B. Sociologists must refrain from disclosure of personal information concerning students where such information is not directly relevant to issues of competence or professional ethics.

C. Sociologists must refrain from exploiting students.

1. Sociologists must not use faculty powers to gain sexual or other personal favors from students.

2. Sociologists must not use faculty status to gain undue economic or professional advantages at the expense of students.

3. Sociologists must not represent the work of students as their own.

IV. Relationships Among Sociologists

A. Sociologists must evaluate the work of colleagues in an objective and nonprejudiced manner, according to explicit criteria and standards.

B. When evaluations of professional competence occur, sociologists must not disclose personal information about colleagues where such information is not directly relevant to performance or ethics.

C. Sociologists must at all times honestly represent their own professional records and credentials.

D. Sociologists must actively defend rights of free inquiry and communication for themselves and all colleagues.

E. Sociologists must make the data to support published research results available to colleagues upon request.

Appendix U

Institute for Electrical and Electronics Engineers

Excerpts from the
"IEEE Bylaws"*
January 1980

Sec. 112. Member Discipline and Support

(1) A member of the IEEE may be expelled, suspended, or censured for cause. Cause shall mean conduct which is determined to constitute a material violation of the Constitution, Bylaws, or Code of Ethics of IEEE, or other conduct which is seriously prejudicial to IEEE.

The Board of Directors at its discretion may notify the membership of any expulsion, suspension, or censure. Any such notification may include a statement of the circumstances surrounding such action.

No person who has been expelled from membership and no member who has been suspended shall (during the period of the suspension) be allowed any of the rights or privileges of membership in the IEEE. Service on committees and boards, at all levels, shall be denied to a person expelled or suspended (during the period of the suspension) from the IEEE.

Notwithstanding anything in these Bylaws to the contrary, an affirmative vote of two-thirds of the members of the Board of Directors who vote on the question shall be required to approve the readmission to membership of a former member (a) who has been expelled under the provisions of this Bylaw, or (b) who resigned after the committee referred to in Bylaw 112.2 instituted proceedings against such member.

(2) The Board of Directors shall appoint a committee, to be known as a Member Conduct Committee, composed of five members of the IEEE who are not members of the Board of Directors of the IEEE or employees of the IEEE, to serve for staggered five-year terms. The committee shall consider instituting proceedings looking toward the expulsion, suspension, or censure of a member upon receipt of a complaint in the form of an affidavit, notarized, and signed by any member in good standing of the IEEE, which sets forth with reasonable specificity the alleged conduct of the accused member which is alleged to constitute cause for expulsion, suspension, or censure. No conduct alleged to have occurred more than two years prior to the date on which the complaint is received shall be considered by the committee. Such proceedings shall be instituted if the committee determines, after a preliminary investigation, that there is a reasonable basis for believing (1) that the facts alleged in the complaint, if proven, would constitute cause for expulsion, suspension, or censure of the accused member, and (2) that the facts alleged in the complaint can

*Note: Full text of the Bylaws is available from the IEEE offices at 345 E. 47th Street, New York, NY 10017.

be proven. In making such preliminary investigation, the committee may act in its own behalf or through ad hoc committees appointed by and under the direction of the chairman of the Member Conduct Committee. The Member Conduct Committee shall not be required to initiate an investigation unless the person(s) submitting a complaint agree in writing to attend any hearing instituted pursuant to Section 3 of this Bylaw, if so requested by the accused member or the Member Conduct Committee.

(3) The Board of Directors shall appoint at least twenty members of the IEEE in good standing, none of whom is a Director or an employee of IEEE, to serve as a panel from which the Executive Committee shall select, as may be required, not fewer than five nor more than nine persons (a hearing board) to hear each complaint and make findings in proceedings instituted by the committee. In addition, the Executive Committee shall designate a first and second alternate for each hearing board to serve in place of one or more hearing board members should such member(s) become disqualified after selection.

Individuals so appointed and selected shall serve on such panel no longer than two years from the date of their appointment, except that they shall continue to serve on a hearing board in any complaint proceeding not concluded prior to the date for termination of their appointment. Upon instituting any such proceeding, the committee shall furnish the accused member with a copy of the complaint, shall give notice to such member of the time and place scheduled for hearing the complaint, and shall invite the member to present at such time a defense either in person, in writing, or by an authorized representative. The committee, or its authorized representative, shall present the case against the accused member at the hearing.

The board hearing the charges shall base its decisions only on testimony and other evidence presented at the hearing. The accused member or the member's authorized representative shall have an opportunity at such hearing to present testimony and other evidence and to confront the evidence supporting the complaint. A finding by the hearing board that the accused member's conduct constitutes cause, as set forth above, shall require an affirmative vote of a majority of the hearing board. The hearing board may recommend to the Board of Directors that the Board determine the sanction to be imposed, or, unless the Board of Directors or the Executive Committee requests that the question of sanction be determined by the Board of Directors, the hearing board may itself impose the sanction; provided, however, that any imposition of the sanction of expulsion or suspension by the hearing board shall require an affirmative determination by two-thirds of its members that the conduct not only constitutes cause for sanction, but also is seriously prejudicial to the best interests of IEEE or of the engineering profession. All findings and recommendations by the hearing board shall be in writing.

If the hearing board finds that the accused member's conduct constitutes cause, as set forth above, the Board of Directors shall review the findings and determinations or recommendations made by the hearing board. The complaint, all evidence submitted to the hearing board, and the written findings and determinations or recommendations of the hearing board shall be made available to the Board of Directors. The final action of the Board of Directors shall be by recorded ballot at a meeting of the Board of Directors. If the complaint was signed by a Director, such Director shall not be eligible to vote. The Board of Directors shall notify the member of the decision taken and if the member is expelled, shall drop the member's name from the rolls of IEEE.

An affirmative vote by a majority of the entire Board of Directors shall be required to sustain the hearing board's findings as to cause and determination as to sanction, and if the hearing board's determination as to sanction is to expel or suspend the member, an affirmative vote of two-thirds of the members of the Board of Directors who vote on the question shall be required to sustain the sanction.

In the event that the Board of Directors sustains a finding by the hearing board as to cause, but either the hearing board made no determination as to sanction, or the sanction determined by the hearing board is not sustained by the Board of Directors, then the sanction shall be determined by the Board of Directors by an affirmative vote of a majority of the entire Board of Directors; provided, however, that an affirmative vote of two-thirds of the members of the Board of Directors who vote on the question shall be required to suspend or expel a member; and provided further that the Board of Directors may reduce, but may not increase, a sanction determined by the hearing board.

Subject to the vote requirements set forth in the preceding sentences, the determination of whether to expel, suspend, or censure an accused member shall be made by the hearing board or the Board of Directors, as the case may be, on the basis of the severity of the wrongful conduct of the accused member, the extent to which IEEE's interests were prejudiced as a result of such conduct, and other factors which the hearing board or the Board of Directors considers relevant in the circumstances of the particular case; provided, however, that the hearing board or the Board of Directors shall determine to expel or suspend a member only if it determines that such member's conduct not only constituted cause for sanctions, but also was seriously prejudicial to the best interests of IEEE or of the engineering profession.

(4) The IEEE may offer support to any member involved in a matter of ethical principle which stems in whole or in part from such member's adherence to the Code of Ethics, and which can jeopardize that member's livelihood, compromise the discharge of such member's professional responsibilities, or which can be detrimental to the interests of IEEE or of the engineering profession. All requests for support containing allegations against persons not members of IEEE or against employers or others, requests for advice, and matters of information considered to be relevant to the ethical principles or ethical conduct supported by IEEE shall be submitted initially to the Member Conduct Committee. Requests for support shall not include requests that the Member Conduct Committee support a member who is the subject of a complaint as set forth in Section 2 of this Bylaw. IEEE support of members requesting intervention or amicus curiae participation in legal proceedings shall be limited to issues of ethical principle.

The committee, following a preliminary investigation of any requests for support received, shall submit a report to the Executive Committee which shall include findings and recommendations for consideration by the Executive Committee. The Executive Committee may, if it deems it appropriate to do so, appoint an advisory board to assist it in considering such report. On the basis of information available, the Executive Committee may thereafter offer support to the member as appropriate to the circumstances and consistent with Sections 7.9 and 7.10 of the current IEEE Policy and Procedures Manual. The Executive Committee shall make the final decision as to supporting a member, unless the Executive Committee or the Board of Directors determines that the Board of Directors should make such final decision.

The Board of Directors, or the Executive Committee upon approval by the Board of Directors, may publish findings, opinions, or comments in support of the member, and take such further action as may be in the interests of the member, the IEEE, or the engineering profession. ...

Institute of Electrical and Electronics Engineers

Excerpts from the
"Report of the IEEE Member Conduct Committee Report"*
(1978)

In the Matter of Virginia Edgerton (IEEE-7366040)

The Complaint. Ms. Edgerton was engaged as a consultant by the Criminal Justice Coordinating Council of the City of New York in December 1976 on a per diem basis, which employment was approved by the Office of the Mayor in January 1977. Her duties as Senior Information Scientist included the review, evaluation, feasibility analysis and development of computer programs and associated plans, including liaison activities with the police department and the Criminal Justice Steering Committee, each of which groups were utilizing or planned to utilize computer facilities available to the city for programs in operation or contemplated. SPRINT, an on-line police emergency dispatch system, was in operation. PROMIS, a second on-line system, was in development for use by district attorneys throughout the New York City to aid in the prosecution of current litigation. The latter program was the responsibility of the Criminal Justice Steering Committee, the project chairman of which was Robert M. Morgentheau and whose project director was Sarwar A. Kashmeri, Ms. Edgerton's immediate supervisor.

Ms. Edgerton, during the course of her work, determined that concurrent use of the computer facilities available to the SPRINT and PROMIS programs raised in her judgment important questions pertaining to the possible degradation of the performance of the police dispatch program. These concerns were expressed to Mr. Kashmeri in a June 3, 1977 memo from Ms. Edgerton.

By memo of June 17, 1977 to the Criminal Justice Steering Committee transmitting a copy of the memo to Kashmeri, Ms. Edgerton advised its members of her continuing concern for the public safety in light of her evaluation of the possible consequence of overloading the computer facilities when the PROMIS program was fully developed and in operation.

Mr. Kashmeri, by letter to Ms. Edgerton dated June 24, 1977, terminated her employment, effective June 21, 1977. The stated reasons were that distribution of her memo of June 17 to the Steering Committee violated his policy that all such memos must be approved by him and the matters raised therein were then under discussion by the police department and members of the CIRCLE (Criminal Justice Information Systems) project. Shortly thereafter, Ms. Edgerton requested the project chairman for a hearing on the matter of her discharge. There is no indication that such a review was afforded Ms. Edgerton....

Conclusion. The MCC concludes that Ms. Edgerton has adhered to the IEEE Code of Ethics. It is our opinion (1) that her professional training and experience qualified her to discern the potential for degradation of the police-emergency dispatch system, (2) that she undertook reasonably to inform the project director of her concern and (3) that her communication of this same concern to the Criminal Justice Steering Committee represented a good faith attempt to protect the community interests served by the computer applications about which she was informed. We believe the attempts were appropriately directed to those persons which were in part or whole responsible for the ultimate compatability of the systems involved. Ms. Edgerton's adherence to the Code has jeopardized her livelihood. Moreover, it is our opinion that the action by those responsible for her employment termination compromised the discharge by her of her professional responsibilities.

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*Note: Full text of the report was reprinted in the IEEE newsletter Technology and Society, March 1979, and is available from the IEEE offices.

Comment. The stated reason for Ms. Edgerton's termination was her distribution of the memorandum to the members of the CIRCLE committee "in violation of policy established by" the project director, and against express "orders that all communications sent to the members must be approved by the Project Director." The fact of termination and the reasons stated therefore are not in dispute. The Code of Ethics becomes relevant in this matter as the basis upon which to ascertain the reasonableness of the IEEE member's conduct, not that of the project director. Because we have determined that Ms. Edgerton's actions are consistent with the Code, however, there is presented a conflict of "policies," whose principles guiding professional activities in an employment relationship which we endorse, and those "policies" which guide the administration of, communications by, and supervision of employed persons.

This is not a circumstance in which the IEEE member, dissatisfied with the consideration or treatment afforded by supervisory personnel, took the issue outside of the confines of the employer's organization either in the search of relief of the member's personal grievance or to remedy a potential detriment to the public interest through publication in the media or otherwise. Under the circumstances, we are of the opinion that Ms. Edgerton's action was demonstrably a more professional approach in her relation to the employer. With benefit of hindsight, it is possible, of course, to suggest Ms. Edgerton might have persisted in her efforts to resolve the matters satisfactorily with the project director, thus eliminating the need to solicit participation by the Steering Committee, which effort led to her discharge. In a similarly facile manner, it can be suggested that the project director could have undertaken to deal constructively, and more responsively, to the substance of Ms. Edgerton's professional judgments. Neither approach, however, addresses what we perceive to be the focal point in this matter. Was it reasonable to resolve what apparently was a matter of divergent judgment by the discharge of Ms. Edgerton? We conclude that it was not. We have found Ms. Edgerton to have acted in a manner consistent with the Code of Ethics. We have found no indication that the discharge was influenced by any circumstance other than the distribution of the memorandum. The prohibition against such distribution to the Steering Committee stemmed from a policy prescribed by the project director. No matters have been brought to our attention that explain the need for, the purpose or efficacy of such a policy. Neither has it been shown that such a policy was existent elsewhere among the relevant committees, directors, or staff serving to implement the subject computer applications.

Finally, we believe the circumstances of the situation described herein indicate the present need of employers to develop a means whereby professional employees can raise and be afforded review of their judgments, responsibly formulated, so as to avoid their summary discharge for violation of "policy", when the result of such policy serves to prevent the dissemination and reasonable consideration of professional opinions related to the successful functioning of systems or equipment involving safety and welfare considerations, directly or indirectly, affecting the public interest of a community of citizens to be served by such systems or equipment.

Appendix V

National Society of Professional Engineers

Excerpts from the
"Opinions of the Board of Ethical Review of
the National Society of Professional Engineers, Vol. II" (pp. 35-36.)*
1967

Participation in Production of Unsafe Equipment - Case No. 65-12

Subject. Participation in Production of Unsafe Equipment--Section 1(c)--Code of Ethics; Section 2--Code of Ethics; Section 2(a)--Code of Ethics; Section 2(c)--Code of Ethics.

Facts. Engineers of Company "A" prepared plans and specifications for machinery to be used in a manufacturing process and Company "A" turned them over to Company "B" for production. The engineers of Company "B" in reviewing the plans and specifications came to the conclusion that they included certain miscalculations and technical deficiencies of a nature that the final product might be unsuitable for the purposes of the ultimate users, and that the equipment, if built according to the original plans and specifications, might endanger the lives of persons in the proximity of it. The engineers of Company "B" called the matter to the attention of appropriate officials of their employer who, in turn, advised Company "A" of the concern expressed by the engineers of Company "B". Company "A" replied that its engineers felt that the design and specifications for the equipment were adequate and safe and that Company "B" should proceed to build the equipment as designed and specified. The officials of Company "B" instructed its engineers to proceed with the work.

Question. What are the ethical obligations of the engineers of Company "B" under the stated circumstances?

References. Code of Ethics--Section 1(c)--"He will advise his client or employer when he believes a project will not be successful."

Section 2--"The Engineer will have proper regard for the safety, health, and welfare of the public in the performance of his professional duties. If his engineering judgment is overruled by nontechnical authority, he will clearly point out the consequences. He will notify the proper authority of any observed conditions which endanger public safety and health."

Section 2(a)--"He will regard his duty to the public welfare as paramount."
Section 2(c)--"He will not complete, sign, or seal plans and/or specifications that are not of a design safe to the public health and welfare and in conformity with accepted engineering standards. If the client or employer

*Note: Full text of the opinion is available from the NSPE offices at 2029 K Street, NW, Washington, DC 20006.

insists on such unprofessional conduct, he shall notify the proper authorities and withdraw from further service on the project."

Discussion. The engineers of Company "B" fulfilled their obligation under Section 1(c) of the Code by notifying their employer that they did not believe the project would be successful as designed by the engineers of Company "A". They also met the requirements of Section 2 in pointing out the consequences to be expected from proceeding under the original plans and specifications. By their actions the engineers of Company "B" regarded their "duty to the public welfare as paramount," as required by Section 2(a).

The further and more difficult question, however, is whether the engineers of Company "B" are required or ethically permitted to refuse to proceed with the production on the basis of plans and specifications which they continue to regard as unsafe.

In Case 61-10, we held that engineers assigned to the redesign of a commerical product of lower quality should not question the company's business decision, but had an obligation to point out any safety hazards in the new design. In that case, however, the redesign of the product involved only a question of a lower quality product and did not raise the problem of the product endangering public health or safety.

Section 2(c) of the Code is specific in holding that engineers will not complete, sign, or seal plans and/or specifications that are not of a design safe to the public health and welfare. In this situation, the engineers of Company "B" have not been requested, or required, to "sign, or seal plans and/or specifications" at all. This has been done by the engineers of Company "A". A literal construction of the Code language may, therefore, indicate that the engineers of Company "B" may ethically proceed with their role in the production process. But we think that this is too narrow a reading of the Code and that the purpose and force of Section 2(c) is that the engineer will not participate in any way in engineering operations which endanger the public health and safety.

The last sentence of Section 2(c) is likewise clear in requiring that the engineers not only notify proper authority of the dangers which they believe to exist, but that they also "withdraw from further service on the project." This mandate applies to engineers serving clients or employers.

Where, as in this case, there is an apparent honest difference of opinion as to the safety features of the machinery between the engineers of Company "A" and the engineers of Company "B", it would be appropriate for the question to be referred to an impartial body of experts, such as a technical engineering society in the particular field of practice, for an independent determination.

So long as the engineers of Company "B" hold to their opinion that the machinery as originally designed and specified would be unsafe to the public, they should refuse to participate in its processing or production under the mandate of Section 2(c). While such refusal to comply with the instruction of their employer may cause a most difficult situation, or even lead to the loss of employment, we must conclude that these considerations are subordinate to the requirements of the Code.

Conclusion. The ethical obligations of the engineers of Company "B" are to notify their employer of possible dangers to the public safety and seek to have the design and specifications altered to make the machinery safe in their opinion; if the opinions cannot be reconciled they should propose submission of the problem to an independent and impartial body of experts: unless and until the engineers of Company "B" are satisfed that the machinery would not jeopardize the public safety, they should refuse to participate in any engineering activity connected with the project.

Note--This opinion is based on data submitted to the Board of Ethical Review and does not necessarily represent all of the pertinent facts when applied to a specific case. This opinion is for educational purposes only and should not be construed as expressing any opinion on the ethics of specific individuals. This opinion may be reprinted without further permission, provided that this statement is included before or after the text of the case.

Appendix W

Institute of Food Science & Technology of the United Kingdom

Excerpts from
"Professional Conduct Guideline No. 4
Conflicts Involving Professional Ethics"
(1977)

1. Introduction

1.1 Difficulties are encountered in situations where:

(a) a given ethical principle implies responsibility or loyalty in opposing directions
(b) more than one ethical principle is involved, and conforming with one of these appears to offend against another.

1.2 This Guideline cannot give a definite course of action in the case of such ethical dilemmas, but it can, however, underline some of the forms in which ethical dilemmas arise, and provide helpful pointers for individuals to bear in mind.

1.3 In an ethical dilemma, the individual has 2 options:

(a) Choose one of the available courses, for which decision he or she must accept responsibility;
(b) Look for a new option which would serve both apparently opposing loyalties (in 1.1 (a)) or be consistent with all the principles (in 1.1 (b)).

1.4 Where the latter solution is not apparent, the individual's decision may be made easier by consulting an independent opinion—e.g. an experienced professional person, even the Professional Conduct Committee of the Institute. Confidentiality may be maintained by describing the problem in outline or by analogy.

1.5 In seeking a basis for decision, it would be all to easy to generalise on the principle that the public interest should always be given precedence over private interest. This generalisation begs a number of questions which are referred to in Section 2.

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*Note: Full text of the Institute's Code of Professional Conduct and the above guideline is available from IFST, 105-111 Euston Street, London NW1 2HD, U.K.

2. Typical Situations

2.1 Confidentiality v Public Duty to Reveal

The major instance of this would relate to the placing of unwholesome food on the market. Refer to Professional Guideline No. 1 (Wholesomeness of Food), especially Section 4, which states that members should "take legitimate steps through the proper channels" and each member is expected to do this to the full extent of his or her scope for taking decisions, but members are not accountable or open to criticism for deficiencies or actions beyond their power to influence.

In the event of all the "legitimate steps through the proper channels" being taken, to no avail, and the failure arising from a genuine difference of opinion re the wholesomeness of the food, a last resort before considering disclosure may be to invite the manufacturer to seek an independent expert opinion.

"Disclosure" may imply:

(a) a responsive action (e.g. in answer to a direct question in a court of law or public enquiry--where a member cannot claim confidentiality grounds for remaining silent, as on occasion may a priest or doctor)

(b) an initiatory action--e.g. in the case of a real public hazard where (a) would be too late. It must be remembered that this is a very grave step to take, would be serious and damaging for the manufacturer concerned, and have possible adverse consequences for the individual. General knowledge by an erring manufacturer that a professional may feel compelled by his or her professional code to publicly disclose wilful irresponsibility, should ensure that the situation does not occur, but in the rare exception, the decision must lie with the individual member.

Most would probably hold that a wilful infringement such as misdescription, failure to comply fully with a statutory compositional standard, or release of a product batch with substandard appearance, texture or flavour, would hardly justify so grave a step as initiatory disclosure in breach of confidence (particularly if it were an isolated instance). Conversely, the knowledge that, despite all legitimate efforts to prevent it, a knowing decision had been taken to release for sale a quantity of food constituting a recognised public health hazard (e.g. inadequately heat-processed canned meat, or a product hazardously contaminated) would indicate a clear public duty of urgent initiatory disclosure.

Where two or more members of the profession at varying levels of seniority have been involved in the legitimate steps taken through the proper channels, it is generally desirable that any disclosure be made by the most senior professional.

For issues between the extreme cases outlined above, members should consider the following points:

(a) the seriousness of the infringment, and especially whether the public would be only disadvantaged, or actually placed in danger (and to what extent);

(b) whether the facts are sufficiently well-authenticated and their interpretation sufficiently well-based (see Professional Conduct Guideline No. 1 "Wholesomeness of Food" Section 1.3);

(c) if hazard is thought to be involved, whether it is hazard that is generally recognised as such by the general body of professional experts in the field, or whether it is merely a personal view (however strongly and sincerely held). Attention is drawn to Section 1.3 of Professional Conduct Guideline No. 1, which warns that care must be taken to ensure that facts are not being selected, consciously or unconsciously, to support a predetermined conclusion, or to disguise a hazard, or to warn of a hazard the reality of which has not been established.

Clause (ix) of the Code of Professional Conduct requires each member to "support fellow members who may find themselves in difficulties on account of their adherence to this Code and the Institute in its efforts to protect them". If the Professional Conduct Committee is fully satisfied that the member has acted responsibly in accordance with the Code in a situation where the facts warranted such action, it would advise Council that the Institute should do all in its power to support and protect the member. Clearly, it is both undesirable and impracticable to hypothesise in advance what forms of action might be appropriate in a particular case, but in any event it must be stressed that the Institute itself cannot accept legal liability for actions by individuals.

2.2 Responsibility to an Employer v Responsibility to a Subordinate
(text omitted)

2.3 Promotion of Employer's Interest v Scientific Objectivity
It is clearly the duty of members to do all that they properly can to further the legitimate interests of their employers or clients. Members may sometimes find themselves under pressure to do so to an extent or in ways which would compromise their professional integrity. Alternatively, enthusiasm may inadvertently carry the individual to a point where scientific objectivity suffers. The latter problem may arise particularly where the member is working in the fields of marketing, advertising or sales, or in providing technical service support to the sales function, most frequently in connection with some aspect of the wholesomeness of food. Full guidance on this was given in Section 5 of Professional Conduct Guideline No. 1, to which reference should be made. Similar principles will apply to other manifestations of this conflict.

2.4 Responsibility (of a consultant) to one client v Responsibility to another
(text omitted)

2.5 Responsibility to an Organisation v Responsibility to the Profession
(text omitted)

2.6 Possible Conflict of Loyalties to various Societies, Institutes, etc.
In their individual professional capacities or some aspect of them, food scientists or technologists may belong to professional and other institutes, "learned societies", bodies concerned with a limited sector of food science and technology, bodies with an incidental or overlapping interest in food science and technology, and other bodies, of a federal nature, on which food scientists or technologists may serve as representatives of their employing organisations (e.g. trade association), or as representatives of individual societies or institutes. Generally, the interests of such bodies coincide, overlap, are complementary, or at least do not clash. Where the respective interests of two or more such bodies do differ, however, possible conflict of loyalties may arise for a member active in the bodies

concerned, and particularly for one serving on the respective committees.

The problem of confidentiality of information in this context has already been discussed in Section 6.4 of Professional Conduct Guideline No. 3, "Confidentiality of Information". As regards advocacy of policy and contribution to decision-making in this context, the following principles should be noted:

(a) when acting in a representational role (e.g. representing a body in a federal organisation or a firm in a trade association) a member should advocate the views of the body/firm represented and no other, and support proposals compatible therewith (subject to the considerations outlined in Section 2.5 above);

(b) when participating in the deliberations of an institute or society, a member should have first and foremost in mind the interests of that body, and should refrain from seeking to promote there the interests of any other body. Members should, however, seek to foster the maximum amount of goodwill and practical collaboration among organisations.

2.7 Responsibility to Colleagues in a Trade Union v Responsibility to the Profession

Professionals who support trade unionism, either considering that there is no incompatibility with professional ethics, or that trade union causes may deserve a greater loyalty, may occasionally encounter very great difficulty in deciding in particular circumstances where their greater loyalty and responsibility lie.

Individuals may not always have a completely free choice of which Union they join; and even if they join a wholly professional union, instances have arisen where a professional union has threatened the area of public interest for which it is professionally responsible, as a means of achieving its own objectives and/or gain sectional advantage. If this happens, members should consider the public interest as well as their own.

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